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EDUCATIONAL REFORM

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EDUCATIONAL REFORM

ESSAYS AND ADDRESSES

BY

CHARLES WILLIAM ELIOT, LL. D.

PRESIDENT OF HARVARD UNIVERSITY

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PREFACE

THE papers contained in this volume have been selected from a much larger number on the ground that they set forth with clearness and sufficient amplitude the various educational reforms I have been trying to promote during the past thirty years. They are arranged chronologically. Most of them were lectures or addresses delivered at public meetings, some having been read from manuscript, and others having been prepared after the original delivery by revising shorthand reports. The speeches will be easily recognized by their style.

No changes have been made in these papers, except a few insignificant corrections affecting the form but not the sense. When such phrases occur as "ten years ago" or "during the past twenty years," the time is always to be understood as reckoned from the date of the paper.

Inasmuch as I have been urging similar principles or measures of reform at various stages of education, there is necessarily some repetition of doctrines and arguments in the series of addresses. Indeed, some repetition was inevitable, since almost all the reforms advocated in the later papers are distinctly though slightly outlined in the first address in the collection — an address delivered in

1869. So slow is the progress of educational reform. So easy is it to discern educational improvements; so hard to get them carried out in practice.

On one subject treated in that first address (pp. 9 and 10), namely, the expediency of putting college examinations into the hands of persons who are not college teachers, I no longer hold the views there expressed; but in general the papers in this volume express my present opinions and beliefs.

C. W. E.

CAMBRIDGE,
April 18, 1898.

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INAUGURAL ADDRESS AS PRESIDENT OF HARVARD COLLEGE

October 19, 1869

INAUGURAL ADDRESS AS PRESIDENT OF HARVARD COLLEGE

THE endless controversies whether language, philosophy, mathematics, or science supplies the best mental training, whether general education should be chiefly literary or chiefly scientific, have no practical lesson for us to-day. This University recognizes no real antagonism between literature and science, and consents to no such narrow alternatives as mathematics or classics, science or metaphysics. We would have them all, and at their best. To observe keenly, to reason soundly, and to imagine vividly are operations as essential as that of clear and forcible expression; and to develop one of these faculties, it is not necessary to repress and dwarf the others. A university is not closely concerned with the applications of knowledge, until its general education branches into professional. Poetry and philosophy and science do indeed conspire to promote the material welfare of mankind; but science no more than poetry finds its best warrant in its utility. Truth

and right are above utility in all realms of thought and action.

It were a bitter mockery to suggest that any subject whatever should be taught less than it now is in American colleges. The only conceivable aim of a college government in our day is to broaden, deepen, and invigorate American teaching in all branches of learning. It will be generations before the best of American institutions of education will get growth enough to bear pruning. The descendants of the Pilgrim Fathers are still very thankful for the parched corn of learning.

Recent discussions have added pitifully little to the world's stock of wisdom about the staple of education. Who blows to-day such a ringing trumpet-call to the study of language as Luther blew? Hardly a significant word has been added in two centuries to Milton's description of the unprofitable way to study languages. Would any young American learn how to profit by travel, that foolish beginning but excellent sequel to education, he can find no apter advice than Bacon's. The practice of England and America is literally centuries behind the precept of the best thinkers upon education. A striking illustration may be found in the prevailing neglect of the systematic study of the English language. How lamentably true to-day are these words of Locke: "If any one among us have a facility or purity more than ordinary in his mother-tongue, it is owing to chance, or his genius, or anything rather than to his education or any care of his teacher."

THE best result of the discussion which has raged so long about the relative educational value of the main branches of learning is the conviction that there is room for them all in a sound scheme, provided that right methods of teaching be employed. It is not because of the limitation of their faculties that boys of eighteen come to college, having mastered nothing but a few score pages of Latin and Greek, and the bare elements of mathematics. Not nature, but an unintelligent system of instruction from the primary school through the college, is responsible for the fact that many college graduates have so inadequate a conception of what is meant by scientific observation, reasoning, and proof. It is possible for the young to get actual experience of all the principal methods of thought. There is a method of thought in language, and a method in mathematics, and another of natural and physical science, and another of faith. With wise direction, even a child would drink at all these springs. The actual problem to be solved is not what to teach, but how to teach. The revolutions accomplished in other fields of labor have a lesson for teachers. New England could not cut her hay with scythes, or the West her wheat with sickles. When millions are to be fed where formerly there were but scores, the single fish-line must be replaced by seines and trawls, the human shoulders by steam-elevators, and the wooden-axled ox-cart on a corduroy road by the smooth-running freight-train. In education, there is a great hungry multitude to

be fed. The great well at Orvieto, up whose spiral paths files of donkeys painfully brought the sweet water in kegs, was an admirable construction in its day; but now we tap Fresh Pond in our chambers. The Orvieto well might remind some persons of educational methods not yet extinct. With good methods, we may confidently hope to give young men of twenty to twenty-five an accurate general knowledge of all the main subjects of human interest, besides a minute and thorough knowledge of the one subject which each may select as his principal occupation in life. To think this impossible is to despair of mankind; for unless a general acquaintance with many branches of knowledge, good so far as it goes, be attainable by great numbers of men, there can be no such thing as an intelligent public opinion; and in the modern world the intelligence of public opinion is the one indispensable condition of social progress.

What has been said of needed reformation in methods of teaching the subjects which have already been nominally admitted to the American curriculum applies not only to the university, but to the preparatory schools of every grade down to the primary. The American college is obliged to supplement the American school. Whatever elementary instruction the schools fail to give, the college must supply. The improvement of the schools has of late years permitted the college to advance the grade of its teaching, and adapt the methods of its later years to men instead of boys. This improvement of the college reacts upon the

schools to their advantage; and this action and reaction will be continuous. A university is not built in the air, but on social and literary foundations which preceding generations have bequeathed. If the whole structure needs rebuilding, it must be rebuilt from the foundation. Hence, sudden reconstruction is impossible in our high places of education. Such inducements as the College can offer for enriching and enlarging the course of study pursued in preparatory schools, the Faculty has recently decided to give. The requirements in Latin and Greek grammar are to be set at a thorough knowledge of forms and general principles; the lists of classical authors accepted as equivalents for the regular standards are to be enlarged; an acquaintance with physical geography is to be required; the study of elementary mechanics is to be recommended, and prizes are to be offered for reading aloud, and for the critical analysis of passages from English authors. At the same time the University will take to heart the counsel which it gives to others.

In every department of learning the University would search out by trial and reflection the best methods of instruction. The University believes in the thorough study of language. It contends for all languages — Oriental, Greek, Latin, Romance, German, and especially for the mother-tongue; seeing in them all one institution, one history, one means of discipline, one department of learning. In teaching languages, it is for this

American generation to invent, or to accept from abroad, better tools than the old; to devise, or to transplant from Europe, prompter and more comprehensive methods than the prevailing; and to command more intelligent labor, in order to gather rapidly and surely the best fruit of that culture and have time for other harvests.

The University recognizes the natural and physical sciences as indispensable branches of education, and has long acted upon this opinion; but it would have science taught in a rational way, objects and instruments in hand — not from books merely, not through the memory chiefly, but by the seeing eye and the informing fingers. Some of the scientific scoffers at gerund grinding and nonsense verses might well look at home; the prevailing methods of teaching science, the world over, are, on the whole, less intelligent than the methods of teaching language. The University would have scientific studies in school and college and professional school develop and discipline those powers of the mind by which science has been created and is daily nourished — the powers of observation, the inductive faculty, the sober imagination, the sincere and proportionate judgment. A student in the elements gets no such training by studying even a good text-book, though he really master it, nor yet by sitting at the feet of the most admirable lecturer.

If there be any subject which seems fixed and settled in its educational aspects, it is the mathematics; yet there is no department of the Univer-

sity which has been, during the last fifteen years, in such a state of vigorous experiment upon methods and appliances of teaching as the mathematical department. It would be well if the primary schools had as much faith in the possibility of improving their way of teaching multiplication.

The important place which history, and mental, moral, and political philosophy, should hold in any broad scheme of education is recognized of all; but none know so well how crude are the prevailing methods of teaching these subjects as those who teach them best. They cannot be taught from books alone, but must be vivified and illustrated by teachers of active, comprehensive, and judicial mind. To learn by rote a list of dates is not to study history. Mr. Emerson says that history is biography. In a deep sense this is true. Certainly, the best way to impart the facts of history to the young is through the quick interest they take in the lives of the men and women who fill great historical scenes or epitomize epochs. From the centers so established, their interest may be spread over great areas. For the young especially, it is better to enter with intense sympathy into the great moments of history, than to stretch a thin attention through its weary centuries.

Philosophical subjects should never be taught with authority. They are not established sciences; they are full of disputed matters, open questions, and bottomless speculations. It is not the function of the teacher to settle philosophical and political controversies for the pupil, or even to

recommend to him any one set of opinions as better than another. Exposition, not imposition, of opinions is the professor's part. The student should be made acquainted with all sides of these controversies, with the salient points of each system; he should be shown what is still in force of institutions or philosophies mainly outgrown, and what is new in those now in vogue. The very word "education" is a standing protest against dogmatic teaching. The notion that education consists in the authoritative inculcation of what the teacher deems true may be logical and appropriate in a convent, or a seminary for priests, but it is intolerable in universities and public schools, from primary to professional. The worthy fruit of academic culture is an open mind, trained to careful thinking, instructed in the methods of philosophic investigation, acquainted in a general way with the accumulated thought of past generations, and penetrated with humility. It is thus that the university in our day serves Christ and the church.

The increasing weight, range, and thoroughness of the examination for admission to college may strike some observers with dismay. The increase of real requisitions is hardly perceptible from year to year; but on looking back ten or twenty years, the changes are marked, and all in one direction. The dignity and importance of this examination have been steadily rising, and this rise measures the improvement of the preparatory schools. When the gradual improvement of American

schools has lifted them to a level with the German gymnasia, we may expect to see the American college bearing a nearer resemblance to the German faculties of philosophy than it now does. The actual admission examination may best be compared with the first examination of the University of France. This examination, which comes at the end of a French boy's school life, is for the degree of Bachelor of Arts or of Sciences. The degree is given to young men who come fresh from school and have never been under university teachers; a large part of the recipients never enter the university. The young men who come to our examination for admission to college are older than the average of French Bachelors of Arts. The examination tests not only the capacity of the candidates, but also the quality of their school instruction; it is a great event in their lives, though not, as in France, marked by any degree. The examination is conducted by college professors and tutors who have never had any relations whatever with those examined. It would be a great gain if all subsequent college examinations could be as impartially conducted by competent examiners brought from without the college and paid for their services. When the teacher examines his class, there is no effective examination of the teacher. If the examinations for the scientific, theological, medical, and dental degrees were conducted by independent boards of examiners, appointed by professional bodies of dignity and influence, the significance of these degrees would be greatly en-

hanced. The same might be said of the degree of Bachelor of Laws, were it not that this degree is, at present, earned by attendance alone, and not by attendance and examination. The American practice of allowing the teaching body to examine for degrees has been partly dictated by the scarcity of men outside the faculties who are at once thoroughly acquainted with the subjects of examination, and sufficiently versed in teaching to know what may fairly be expected of both students and instructors. This difficulty could now be overcome. The chief reason, however, for the existence of this practice is that the faculties were the only bodies that could confer degrees intelligently, when degrees were obtained by passing through a prescribed course of study without serious checks, and completing a certain term of residence without disgrace. The change in the manner of earning the University degrees ought, by right, to have brought into being an examining body distinct from the teaching body. So far as the College proper is concerned, the Board of Overseers have, during the past year, taken a step which tends in this direction.

The rigorous examination for admission has one good effect throughout the college course: it prevents a waste of instruction upon incompetent persons. A school with a low standard for admission and a high standard of graduation, like West Point, is obliged to dismiss a large proportion of its students by the way. Hence much individual distress, and a great waste of resources, both pub-

lic and private. But, on the other hand, it must not be supposed that every student who enters Harvard College necessarily graduates. Strict annual examinations are to be passed. More than a fourth of those who enter the College fail to take their degree.

Only a few years ago, all students who graduated at this College passed through one uniform curriculum. Every man studied the same subjects in the same proportions, without regard to his natural bent or preference. The individual student had no choice of either subjects or teachers. This system is still the prevailing system among American colleges, and finds vigorous defenders. It has the merit of simplicity. So had the school methods of our grandfathers — one primer, one catechism, one rod for all children. On the whole, a single common course of studies, tolerably well selected to meet the average needs, seems to most Americans a very proper and natural thing, even for grown men.

As a people, we do not apply to mental activities the principle of division of labor; and we have but a halting faith in special training for high professional employments. The vulgar conceit that a Yankee can turn his hand to anything we insensibly carry into high places, where it is preposterous and criminal. We are accustomed to seeing men leap from farm or shop to court-room or pulpit, and we half believe that common men can safely use the seven-league boots of genius.

What amount of knowledge and experience do we habitually demand of our lawgivers? What special training do we ordinarily think necessary for our diplomatists? — although in great emergencies the nation has known where to turn. Only after years of the bitterest experience did we come to believe the professional training of a soldier to be of value in war. This lack of faith in the prophecy of a natural bent, and in the value of a discipline concentrated upon a single object, amounts to a national danger.

In education, the individual traits of different minds have not been sufficiently attended to. Through all the period of boyhood the school studies should be representative; all the main fields of knowledge should be entered upon. But the young man of nineteen or twenty ought to know what he likes best and is most fit for. If his previous training has been sufficiently wide, he will know by that time whether he is most apt at language or philosophy or natural science or mathematics. If he feels no loves, he will at least have his hates. At that age the teacher may wisely abandon the school-dame's practice of giving a copy of nothing but zeros to the child who alleges that he cannot make that figure. When the revelation of his own peculiar taste and capacity comes to a young man, let him reverently give it welcome, thank God, and take courage. Thereafter he knows his way to happy, enthusiastic work, and, God willing, to usefulness and success. The civilization of a people may be inferred from the variety of its

tools. There are thousands of years between the stone hatchet and the machine-shop. As tools multiply, each is more ingeniously adapted to its own exclusive purpose. So with the men that make the State. For the individual, concentration, and the highest development of his own peculiar faculty, is the only prudence. But for the State, it is variety, not uniformity, of intellectual product, which is needful.

These principles are the justification of the system of elective studies which has been gradually developed in this College during the past forty years. At present the Freshman year is the only one in which there is a fixed course prescribed for all. In the other three years, more than half the time allotted to study is filled with subjects chosen by each student from lists which comprise six studies in the Sophomore year, nine in the Junior year, and eleven in the Senior year. The range of elective studies is large, though there are some striking deficiencies. The liberty of choice of subject is wide, but yet has very rigid limits. There is a certain framework which must be filled; and about half the material of the filling is prescribed. The choice offered to the student does not lie between liberal studies and professional or utilitarian studies. All the studies which are open to him are liberal and disciplinary, not narrow or special. Under this system the College does not demand, it is true, one invariable set of studies of every candidate for the first degree in Arts; but its requisitions for this degree are nevertheless high and

inflexible, being nothing less than four years devoted to liberal culture.

It has been alleged that the elective system must weaken the bond which unites members of the same class. This is true; but in view of another much more efficient cause of the diminution of class intimacy, the point is not very significant. The increased size of the college classes inevitably works a great change in this respect. One hundred and fifty young men cannot be so intimate with each other as fifty used to be. This increase is progressive. Taken in connection with the rising average age of the students, it would compel the adoption of methods of instruction different from the old, if there were no better motive for such change. The elective system fosters scholarship, because it gives free play to natural preferences and inborn aptitudes, makes possible enthusiasm for a chosen work, relieves the professor and the ardent disciple of the presence of a body of students who are compelled to an unwelcome task, and enlarges instruction by substituting many and various lessons given to small, lively classes, for a few lessons many times repeated to different sections of a numerous class. The College therefore proposes to persevere in its efforts to establish, improve, and extend the elective system. Its administrative difficulties, which seem formidable at first, vanish before a brief experience.

THERE has been much discussion about the comparative merits of lectures and recitations. Both

are useful— lectures, for inspiration, guidance, and the comprehensive methodizing which only one who has a view of the whole field can rightly contrive; recitations, for securing and testifying a thorough mastery on the part of the pupil of the treatise or author in hand, for conversational comment and amplification, for emulation and competition. Recitations alone readily degenerate into dusty repetitions, and lectures alone are too often a useless expenditure of force. The lecturer pumps laboriously into sieves. The water may be wholesome, but it runs through. A mind must work to grow. Just as far, however, as the student can be relied on to master and appreciate his author without the aid of frequent questioning and repetitions, so far is it possible to dispense with recitations. Accordingly, in the later College years there is a decided tendency to diminish the number of recitations, the faithfulness of the student being tested by periodical examinations. This tendency is in a right direction, if prudently controlled.

The discussion about lectures and recitations has brought out some strong opinions about text-books and their use. Impatience with text-books and manuals is very natural in both teachers and taught. These books are indeed, for the most part, very imperfect, and stand in constant need of correction by the well-informed teacher. Stereotyping, in its present undeveloped condition, is in part to blame for their most exasperating defects. To make the metal plates keep pace with the progress of learning is costly. The manifest

deficiencies of text-books must not, however, drive us into a too sweeping condemnation of their use. It is a rare teacher who is superior to all manuals in his subject. Scientific manuals are, as a rule, much worse than those upon language, literature, or philosophy; yet the main improvement in medical education in this country during the last twenty years has been the addition of systematic recitations from text-books to the lectures which were formerly the principal means of theoretical instruction. The training of a medical student, inadequate as it is, offers the best example we have of the methods and fruits of an education mainly scientific. The transformation which the average student of a good medical school undergoes in three years is strong testimony to the efficiency of the training he receives.

There are certain common misapprehensions about colleges in general, and this College in particular, to which I wish to devote a few moments' attention. And, first, in spite of the familiar picture of the moral dangers which environ the student, there is no place so safe as a good college during the critical passage from boyhood to manhood. The security of the college commonwealth is largely due to its exuberant activity. Its public opinion, though easily led astray, is still high in the main. Its scholarly tastes and habits, its eager friendships and quick hatreds, its keen debates, its frank discussions of character and of deep political and religious questions, all are

safeguards against sloth, vulgarity, and depravity. Its society and, not less, its solitudes are full of teaching. Shams, conceit, and fictitious distinctions get no mercy. There is nothing but ridicule for bombast and sentimentality. Repression of genuine sentiment and emotion is indeed, in this College, carried too far. Reserve is more respectable than any undiscerning communicativeness; but neither Yankee shamefacedness nor English stolidity is admirable. This point especially touches you, young men, who are still undergraduates. When you feel a true admiration for a teacher, a glow of enthusiasm for work, a thrill of pleasure at some excellent saying, give it expression. Do not be ashamed of these emotions. Cherish the natural sentiment of personal devotion to the teacher who calls out your better powers. It is a great delight to serve an intellectual master. We Americans are but too apt to lose this happiness. German and French students get it. If ever in after years you come to smile at the youthful reverence you paid, believe me, it will be with tears in your eyes.

Many excellent persons see great offense in any system of college rank; but why should we expect more of young men than we do of their elders? How many men and women perform their daily tasks from the highest motives alone — for the glory of God and the relief of man's estate? Most people work for bare bread, a few for cake. The college rank-list reinforces higher motives. In the campaign for character, no auxiliaries are to be

refused. Next to despising the enemy, it is dangerous to reject allies. To devise a suitable method of estimating the fidelity and attainments of college students is, however, a problem which has long been under discussion, and has not yet received a satisfactory solution. The worst of rank as a stimulus is the self-reference it implies in the aspirants. The less a young man thinks about the cultivation of his mind, about his own mental progress,— about himself, in short,— the better.

The petty discipline of colleges attracts altogether too much attention from both friends and foes. It is to be remembered that the rules concerning decorum, however necessary to maintain the high standard of manners and conduct which characterizes this College, are nevertheless justly described as petty. What is technically called a quiet term cannot be accepted as the acme of university success. This success is not to be measured by the frequency or rarity of college punishments. The criteria of success or failure in a high place of learning are not the boyish escapades of an insignificant minority, nor the exceptional cases of ruinous vice. Each year must be judged by the added opportunities of instruction, by the prevailing enthusiasm in learning, and by the gathered wealth of culture and character. The best way to put boyishness to shame is to foster scholarship and manliness. The manners of a community cannot be improved by main force any more than its morals. The Statutes of the University need some amendment and reduction in the chapters on

crimes and misdemeanors. But let us render to our fathers the justice we shall need from our sons. What is too minute or precise for our use was doubtless wise and proper in its day. It was to inculcate a reverent bearing and due consideration for things sacred that the regulations prescribed a black dress on Sunday. Black is not the only decorous wear in these days; but we must not seem, in ceasing from this particular mode of good manners, to think less of the gentle breeding of which only the outward signs, and not the substance, have been changed.

Harvard College has always attracted and still attracts students in all conditions of life. From the city trader or professional man, who may be careless how much his son spends at Cambridge, to the farmer or mechanic, who finds it a hard sacrifice to give his boy his time early enough to enable him to prepare for college, all sorts and conditions of men have wished and still wish to send their sons hither. There are always scores of young men in this University who earn or borrow every dollar they spend here. Every year many young men enter this College without any resources whatever. If they prove themselves men of capacity and character, they never go away for lack of money. More than twenty thousand dollars a year is now devoted to aiding students of narrow means to compass their education, besides all the remitted fees and the numerous private benefactions. These latter are unfailing. Taken

in connection with the proceeds of the funds applicable to the aid of poor students, they enable the Corporation to say that no good student need ever stay away from Cambridge or leave college simply because he is poor. There is one uniform condition, however, on which help is given: the recipient must be of promising ability and the best character. The community does not owe superior education to all children, but only to the élite — to those who, having the capacity, prove by hard work that they have also the necessary perseverance and endurance. The process of preparing to enter college under the difficulties which poverty entails is just such a test of worthiness as is needed. At this moment there is no college in the country more eligible for a poor student than Harvard on the mere ground of economy. The scholarship funds are mainly the fruit of the last fifteen years. The future will take care of itself; for it is to be expected that the men who in this generation have had the benefit of these funds, and who succeed in after life, will pay manyfold to their successors in need the debt which they owe, not to the College, but to benefactors whom they cannot even thank, save in heaven. No wonder that scholarships are founded. What greater privilege than this of giving young men of promise the coveted means of intellectual growth and freedom? The angels of heaven might envy mortals so fine a luxury. The happiness which the winning of a scholarship gives is not the recipient's alone: it flashes back to the home whence he came, and gladdens anxious hearts

there. The good which it does is not his alone, but descends, multiplying at every step, through generations. Thanks to the beneficent mysteries of hereditary transmission, no capital earns such interest as personal culture. The poorest and the richest students are equally welcome here, provided that with their poverty or their wealth they bring capacity, ambition, and purity. The poverty of scholars is of inestimable worth in this money-getting nation. It maintains the true standards of virtue and honor. The poor friars, not the bishops, saved the church. The poor scholars and preachers of duty defend the modern community against its own material prosperity. Luxury and learning are ill bedfellows. Nevertheless, this College owes much of its distinctive character to those who, bringing hither from refined homes good breeding, gentle tastes, and a manly delicacy, add to them openness and activity of mind, intellectual interests, and a sense of public duty. It is as high a privilege for a rich man's son as for a poor man's to resort to these academic halls, and so to take his proper place among cultivated and intellectual men. To lose altogether the presence of those who in early life have enjoyed the domestic and social advantages of wealth would be as great a blow to the College as to lose the sons of the poor. The interests of the College and the country are identical in this regard. The country suffers when the rich are ignorant and unrefined. Inherited wealth is an unmitigated curse when divorced from culture. Harvard College is sometimes reproached with

being aristocratic. If by aristocracy be meant a stupid and pretentious caste, founded on wealth, and birth, and an affectation of European manners, no charge could be more preposterous: the College is intensely American in affection, and intensely democratic in temper. But there is an aristocracy to which the sons of Harvard have belonged, and, let us hope, will ever aspire to belong — the aristocracy which excels in manly sports, carries off the honors and prizes of the learned professions, and bears itself with distinction in all fields of intellectual labor and combat; the aristocracy which in peace stands firmest for the public honor and renown, and in war rides first into the murderous thickets.

The attitude of the University in the prevailing discussions touching the education and fit employments of women demands brief explanation. America is the natural arena for these debates; for here the female sex has a better past and a better present than elsewhere. Americans, as a rule, hate disabilities of all sorts, whether religious, political, or social. Equality between the sexes, without privilege or oppression on either side, is the happy custom of American homes. While this great discussion is going on, it is the duty of the University to maintain a cautious and expectant policy. The Corporation will not receive women as students into the College proper, nor into any school whose discipline requires residence near the school. The difficulties involved in a

common residence of hundreds of young men and women of immature character and marriageable age are very grave. The necessary police regulations are exceedingly burdensome. The Corporation are not influenced to this decision, however, by any crude notions about the innate capacities of women. The world knows next to nothing about the natural mental capacities of the female sex. Only after generations of civil freedom and social equality will it be possible to obtain the data necessary for an adequate discussion of woman's natural tendencies, tastes, and capabilities. Again, the Corporation do not find it necessary to entertain a confident opinion upon the fitness or unfitness of women for professional pursuits. It is not the business of the University to decide this mooted point. In this country the University does not undertake to protect the community against incompetent lawyers, ministers, or doctors. The community must protect itself by refusing to employ such. Practical, not theoretical, considerations determine the policy of the University. Upon a matter concerning which prejudices are deep, and opinion inflammable, and experience scanty, only one course is prudent or justifiable when such great interests are at stake — that of cautious and well-considered experiment. The practical problem is to devise a safe, promising, and instructive experiment. Such an experiment the Corporation have meant to try in opening the newly established University Courses of Instruction to competent women. In these courses

the University offers to young women who have been to good schools as many years as they wish of liberal culture in studies which have no direct professional value, to be sure, but which enrich and enlarge both intellect and character. The University hopes thus to contribute to the intellectual emancipation of women. It hopes to prepare some women better than they would otherwise have been prepared for the profession of teaching, the one learned profession to which women have already acquired a clear title. It hopes that the proffer of this higher instruction will have some reflex influence upon schools for girls — to discourage superficiality, and to promote substantial education.

The governing bodies of the University are the Faculties, the Board of Overseers, and the Corporation. The University as a place of study and instruction is, at any moment, what the Faculties make it. The professors, lecturers, and tutors of the University are the living sources of learning and enthusiasm. They personally represent the possibilities of instruction. They are united in several distinct bodies, the academic and professional Faculties, each of which practically determines its own processes and rules. The discussion of methods of instruction is the principal business of these bodies. As a fact, progress comes mainly from the Faculties. This has been conspicuously the case with the Academic and Medical Faculties during the last fifteen or twenty

years. The undergraduates used to have a notion that the time of the Academic Faculty was mainly devoted to petty discipline. Nothing could be further from the truth. The Academic Faculty is the most active, vigilant, and devoted body connected with the University. It indeed is constantly obliged to discuss minute details, which might appear trivial to an inexperienced observer. But, in education, technical details tell. Whether German be studied by the Juniors once a week as an extra study, or twice a week as an elective, seems, perhaps, an unimportant matter; but, twenty years hence, it makes all the difference between a generation of Alumni who know German and a generation who do not. The Faculty renews its youth, through the frequent appointments of tutors and assistant professors, better and oftener than any other organization within the University. Two kinds of men make good teachers — young men and men who never grow old. The incessant discussions of the Academic Faculty have borne much fruit: witness the transformation of the University since the beginning of President Walker's administration. And it never tires. New men take up the old debates, and one year's progress is not less than another's. The divisions within the Faculty are never between the old and the young officers. There are always old radicals and young conservatives.

The Medical Faculty affords another illustration of the same principle — that for real university progress we must look principally to the teaching

bodies. The Medical School to-day is almost three times as strong as it was fifteen years ago. Its teaching power is greatly increased, and its methods have been much improved. This gain is the work of the Faculty of the School.

If then the Faculties be so important, it is a vital question how the quality of these bodies can be maintained and improved. It is very hard to find competent professors for the University. Very few Americans of eminent ability are attracted to this profession. The pay has been too low, and there has been no gradual rise out of drudgery, such as may reasonably be expected in other learned callings. The law of supply and demand, or the commercial principle that the quality as well as the price of goods is best regulated by the natural contest between producers and consumers, never has worked well in the province of high education. And in spite of the high standing of some of its advocates, it is well-nigh certain that the so-called law never can work well in such a field. The reason is that the demand for instructors of the highest class on the part of parents and trustees is an ignorant demand, and the supply of highly educated teachers is so limited that the consumer has not sufficient opportunities of informing himself concerning the real qualities of the article he seeks. Originally a bad judge, he remains a bad judge, because the supply is not sufficiently abundant and various to instruct him. Moreover, a need is not necessarily a demand. Everybody knows that the supposed law affords a very imper-

fect protection against short weight, adulteration, and sham, even in the case of those commodities which are most abundant in the market and most familiar to buyers. The most intelligent community is defenseless enough in buying clothes and groceries. When it comes to hiring learning and inspiration and personal weight, the law of supply and demand breaks down altogether. A university cannot be managed like a railroad or a cotton-mill.

There are, however, two practicable improvements in the position of college professors which will be of very good effect. Their regular stipend must and will be increased, and the repetitions which now harass them must be diminished in number. It is a strong point of the elective system that, by reducing the size of classes or divisions, and increasing the variety of subjects, it makes the professors' labors more agreeable.

Experience teaches that the strongest and most devoted professors will contribute something to the patrimony of knowledge; or if they invent little themselves, they will do something toward defending, interpreting, or diffusing the contributions of others. Nevertheless, the prime business of American professors in this generation must be regular and assiduous class teaching. With the exception of the endowments of the Observatory, the University does not hold a single fund primarily intended to secure to men of learning the leisure and means to prosecute original researches.

The organization and functions of the Board of Overseers deserve the serious attention of all men who are interested in the American method of providing the community with high education through the agency of private corporations. Since 1866 the Overseers have been elected by the Alumni. Five men are chosen each year to serve six years. The body has, therefore, a large and very intelligent constituency, and is rapidly renewed. The ingenious method of nominating to the electors twice as many candidates as there are places to be filled in any year is worthy of careful study as a device of possible application in politics. The real function of the Board of Overseers is to stimulate and watch the President and Fellows. Without the Overseers, the President and Fellows would be a board of private trustees, self-perpetuated and self-controlled. Provided as it is with two governing boards, the University enjoys that principal safeguard of all American governments — the natural antagonism between two bodies of different constitution, powers, and privileges. While having with the Corporation a common interest of the deepest kind in the welfare of the University and the advancement of learning, the Overseers should always hold toward the Corporation an attitude of suspicious vigilance. They ought always to be pushing and prying. It would be hard to overstate the importance of the public supervision exercised by the Board of Overseers. Experience proves that our main hope for the permanence and ever-widening usefulness of the University

must rest upon this double-headed organization. The English practice of setting up a single body of private trustees to carry on a school or charity according to the personal instructions of some founder or founders has certainly proved a lamentably bad one; and when we count by generations, the institutions thus established have proved short-lived. The same causes which have brought about the decline of English endowed schools would threaten the life of this University were it not for the existence of the Board of Overseers. These schools were generally managed by close corporations, self-elected, self-controlled, without motive for activity, and destitute of external stimulus and aid. Such bodies are too irresponsible for human nature. At the time of life at which men generally come to such places of trust, rest is sweet, and the easiest way is apt to seem the best way; and the responsibility of inaction, though really heavier, seems lighter than the responsibility of action. These corporations were often hampered by founders' wills and statutory provisions which could not be executed, and yet stood in the way of organic improvements. There was no systematic provision for thorough inspections and public reports thereupon. We cannot flatter ourselves that under like circumstances we should always be secure against like dangers. Provoked by crying abuses, some of the best friends of education in England have gone the length of maintaining that all these school endowments ought to be destroyed, and the future creation of such trusts rendered

impossible. French law practically prohibits the creation of such trusts by private persons.

Incident to the Overseers' power of inspecting the University and publicly reporting upon its condition, is the important function of suggesting and urging improvements. The inertia of a massive University is formidable. A good past is positively dangerous, if it make us content with the present, and so unprepared for the future. The present constitution of our Board of Overseers has already stimulated the Alumni of several other New England colleges to demand a similar control over the property-holding board of trustees which has heretofore been the single source of all authority.

We come now to the heart of the University — the Corporation. This board holds the funds, makes appointments, fixes salaries, and has, by right, the initiative in all changes of the organic law of the University. Such an executive board must be small to be efficient. It must always contain men of sound judgment in finance; and literature and the learned professions should be adequately represented in it. The Corporation should also be but slowly renewed; for it is of the utmost consequence to the University that the Government should have a steady aim, and a prevailing spirit which is independent of individuals and transmissible from generation to generation. And what should this spirit be? First, it should be a catholic spirit. A university must be indigenous; it must be rich; but, above all, it must be

free. The winnowing breeze of freedom must blow through all its chambers. It takes a hurricane to blow wheat away. An atmosphere of intellectual freedom is the native air of literature and science. This University aspires to serve the nation by training men to intellectual honesty and independence of mind. The Corporation demands of all its teachers that they be grave, reverent, and high-minded; but it leaves them, like their pupils, free. A university is built, not by a sect, but by a nation.

Secondly, the actuating spirit of the Corporation must be a spirit of fidelity — fidelity to the many and various trusts reposed in them by the hundreds of persons who, out of their penury or their abundance, have given money to the President and Fellows of Harvard College in the beautiful hope of doing some perpetual good upon this earth. The Corporation has constantly done its utmost to make this hope a living fact. One hundred and ninety-nine years ago, William Pennoyer gave the rents of certain estates in the county of Norfolk, England, that "two fellows and two scholars forever should be educated, brought up, and maintained" in this College. The income from this bequest has never failed; and to-day one of the four Pennoyer scholarships is held by a lineal descendant of William Pennoyer's brother Robert. So a lineal descendant of Governor Danforth takes this year the income of the property which Danforth bequeathed to the College in 1699. The Corporation have been as faithful in the greater things as in the

less. They have been greatly blessed in one respect: in the whole life of the Corporation, seven generations of men, nothing has ever been lost by malfeasance of officers or servants. A reputation for scrupulous fidelity to all trusts is the most precious possession of the Corporation. That safe, the College might lose everything else and yet survive; that lost beyond repair, and the days of the College would be numbered. Testators look first to the trustworthiness and permanence of the body which is to dispense their benefactions. The Corporation thankfully receive all gifts which may advance learning; but they believe that the interests of the University may be most effectually promoted by not restricting too narrowly the use to which a gift may be applied. Whenever the giver desires it, the Corporation will agree to keep any fund separately invested under the name of the giver, and to apply the whole proceeds of such investment to any object the giver may designate. By such special investment, however, the insurance which results from the absorption of a specific gift in the general funds is lost. A fund invested by itself may be impaired or lost by a single error of judgment in investing. The chance of such loss is small in any one generation, but appreciable in centuries. Such general designations as salaries, books, dormitories, public buildings, scholarships graduate or undergraduate, scientific collections, and expenses of experimental laboratories, are of permanent significance and effect; while experience proves that too specific

and minute directions concerning the application of funds must often fail of fulfilment, simply in consequence of the changing needs and habits of successive generations.

Again, the Corporation should always be filled with the spirit of enterprise. An institution like this College is getting decrepit when it sits down contentedly on its mortgages. On its invested funds the Corporation should be always seeking how safely to make a quarter of a per cent. more. A quarter of one per cent. means a new professorship. It should be always pushing after more professorships, better professors, more land and buildings, and better apparatus. It should be eager, sleepless, and untiring, never wasting a moment in counting laurels won, ever prompt to welcome and apply the liberality of the community, and liking no prospect so well as that of difficulties to be overcome and labors to be done in the cause of learning and public virtue.

You recognize, gentlemen, the picture which I have drawn in thus delineating the true spirit of the Corporation of this College. I have described the noble quintessence of the New England character — that character which has made us a free and enlightened people; that character which, please God, shall yet do a great work in the world for the lifting up of humanity.

Apart from the responsibility which rests upon the Corporation, its actual labors are far heavier than the community imagines. The business of the University has greatly increased in volume

and complexity during the past twenty years, and the drafts made upon the time and thought of every member of the Corporation are heavy indeed. The high honors of the function are in these days most generously earned.

The President of the University is primarily an executive officer; but, being a member of both governing boards and of all the faculties, he has also the influence in their debates to which his more or less perfect intimacy with the University and greater or less personal weight may happen to entitle him. An administrative officer who undertakes to do everything himself will do but little, and that little ill. The President's first duty is that of supervision. He should know what each officer's and servant's work is, and how it is done. But the days are past in which the President could be called on to decide everything from the purchase of a door-mat to the appointment of a professor. The principle of divided and subordinate responsibilities, which rules in government bureaus, in manufactories, and all great companies, which makes a modern army a possibility, must be applied in the University. The President should be able to discern the practical essence of complicated and long-drawn discussions. He must often pick out that promising part of theory which ought to be tested by experiment, and must decide how many of things desirable are also attainable, and what one of many projects is ripest for execution. He must watch and look before —

watch, to seize opportunities to get money, to secure eminent teachers and scholars, and to influence public opinion toward the advancement of learning; and look before, to anticipate the due effect on the University of the fluctuations of public opinion on educational problems; of the progress of the institutions which feed the University; of the changing condition of the professions which the University supplies; of the rise of new professions; of the gradual alteration of social and religious habits in the community. The University must accommodate itself promptly to significant changes in the character of the people for whom it exists. The institutions of higher education in any nation are always a faithful mirror in which are sharply reflected the national history and character. In this mobile nation the action and reaction between the University and society at large are more sensitive and rapid than in stiffer communities. The President, therefore, must not need to see a house built before he can comprehend the plan of it. He can profit by a wide intercourse with all sorts of men, and by every real discussion on education, legislation, and sociology.

The most important function of the President is that of advising the Corporation concerning appointments, particularly about appointments of young men who have not had time and opportunity to approve themselves to the public. It is in discharging this duty that the President holds the future of the University in his hands. He cannot do it well unless he have insight, unless he be able

to recognize, at times beneath some crusts, the real gentleman and the natural teacher. This is the one oppressive responsibility of the President: all other cares are light beside it. To see every day the evil fruit of a bad appointment must be the cruelest of official torments. Fortunately, the good effect of a judicious appointment is also inestimable; and here, as everywhere, good is more penetrating and diffusive than evil.

It is imperative that the statutes which define the President's duties should be recast, and the customs of the College be somewhat modified, in order that lesser duties may not crowd out the greater. But, however important the functions of the President, it must not be forgotten that he is emphatically a constitutional executive. It is his character and his judgment which are of importance, not his opinions. He is the executive officer of deliberative bodies, in which decisions are reached after discussion by a majority vote. Those decisions bind him. He cannot force his own opinions upon anybody. A university is the last place in the world for a dictator. Learning is always republican. It has idols, but not masters.

What can the community do for the University? It can love, honor, and cherish it. Love it and honor it. The University is upheld by this public affection and respect. In the loyalty of her children she finds strength and courage. The Corporation, the Overseers, and the several faculties need to feel that the leaders of public opinion, and

especially the sons of the College, are at their back, always ready to give them a generous and intelligent support. Therefore we welcome the Chief Magistrate of the Commonwealth, the Senators, Judges, and other dignitaries of the State, who by their presence at this ancient ceremonial bear witness to the pride which Massachusetts feels in her eldest university. Therefore we rejoice in the presence of this throng of the Alumni, testifying their devotion to the College which, through all changes, is still their home. Cherish it. This University, though rich among American colleges, is very poor in comparison with the great universities of Europe. The wants of the American community have far outgrown the capacity of the University to supply them. We must try to satisfy the cravings of the select few as well as the needs of the average many. We cannot afford to neglect the Fine Arts. We need groves and meadows as well as barracks; and soon there will be no chance to get them in this expanding city. But, above all, we need professorships, books, and apparatus, that teaching and scholarship may abound.

And what will the University do for the community? First, it will make a rich return of learning, poetry, and piety. Secondly, it will foster the sense of public duty — that great virtue which makes republics possible. The founding of Harvard College was an heroic act of public spirit. For more than a century the breath of life was

kept in it by the public spirit of the Province and of its private benefactors. In the last fifty years the public spirit of the friends of the College has quadrupled its endowments. And how have the young men nurtured here in successive generations repaid the founders for their pious care? Have they honored freedom and loved their country? For answer we appeal to the records of the national service; to the lists of the Senate, the cabinet, and the diplomatic service, and to the rolls of the army and navy. Honored men, here present, illustrate before the world the public quality of the graduates of this College. Theirs is no mercenary service. Other fields of labor attract them more and would reward them better; but they are filled with the noble ambition to deserve well of the republic. There have been doubts, in times yet recent, whether culture were not selfish; whether men of refined tastes and manners could really love Liberty, and be ready to endure hardness for her sake; whether, in short, gentlemen would in this century prove as loyal to noble ideas as in other times they had been to kings. In yonder old playground, fit spot whereon to commemorate the manliness which there was nurtured, shall soon rise a noble monument which for generations will give convincing answer to such shallow doubts; for over its gates will be written: "In memory of the sons of Harvard who died for their country." The future of the University will not be unworthy of its past.

ADDRESS AT THE INAUGURATION OF DANIEL C. GILMAN

AS PRESIDENT OF JOHNS HOPKINS UNIVERSITY

February 22, 1876

ADDRESS AT THE INAUGURATION OF DANIEL C. GILMAN

THE oldest University of the country cordially greets the youngest, and welcomes a worthy ally — an ally strong in material resources and in high purpose.

I congratulate you, gentlemen, Trustees of the Johns Hopkins University, upon the noble work which is before you. A great property, an important part of the fruit of a long life devoted with energy and sagacity to the accumulation of riches, has been placed in your hands, upon conditions as magnanimous as they are wise, to be used for the public benefit in providing for coming generations the precious means of liberal culture. Your Board has great powers. It must hold and manage the property of the University, make all appointments, fix all salaries, and, while leaving both legislative and administrative details to the several faculties which it will create, it must also prescribe the general laws of the University. Your cares and labors will grow heavy as time goes on; but in accor-

dance with an admirable usage, fortunately established in this country, you will serve without other compensation than the public consideration which will justly attach to your office, and the happy sense of being useful. The actuating spirit of your Board will be a spirit of scrupulous fidelity to every trust reposed in you, and of untiring zeal in promoting the welfare of the University and the advancement of learning. Judged by its disinterestedness, its beneficence, and its permanence, your function is as pure and high as any that the world knows, or in all time has known. May the work which you do in the discharge of your sacred trust be regarded with sympathetic and expectant forbearance by the present generation, and with admiration and gratitude by posterity.

The University which is to take its rise in the splendid benefaction of Johns Hopkins must be unsectarian. None other could as appropriately be established in the city named for the Catholic founder of a colony to which all Christian sects were welcomed, or in the State in which religious toleration was expressly declared in the name of the government for the first time in the history of the Christian world. There is a too common opinion that a college or university which is not denominational must therefore be irreligious; but the absence of sectarian control should not be confounded with lack of piety. A university whose officers and students are divided among many sects need no more be irreverent and irreligious than the community which in respect to diversity of creeds

it resembles. It would be a fearful portent if thorough study of nature and of man in all his attributes and works, such as befits a university, led scholars to impiety. But it does not; on the contrary, such study fills men with humility and awe, by bringing them on every hand face to face with inscrutable mystery and infinite power. The whole work of a university is uplifting, refining, and spiritualizing; it embraces

> Whatsoever touches life
> With upward impulse; be He nowhere else,
> God is in all that liberates and lifts,
> In all that humbles, sweetens, and consoles.

A university cannot be built upon a sect, unless, indeed, it be a sect which includes the whole of the educated portion of the nation. This University will not demand of its officers and students the creed, or press upon them the doctrine, of any particular religious organization; but none the less — I should better say, all the more — it can exert through high-minded teachers a strong moral and religious influence. It can implant in the young breasts of its students exalted sentiments and a worthy ambition; it can infuse into their hearts the sense of honor, of duty, and of responsibility.

I congratulate the city of Baltimore, Mr. Mayor, that in a few generations she will be the seat of a rich and powerful university. To her citizens its grounds and buildings will in time become objects of interest and pride. The libraries and other col-

lections of a university are storehouses of the knowledge already acquired by mankind, from which further invention and improvement proceed. They are great possessions for any intelligent community. The tone of society will be sensibly affected by the presence of a considerable number of highly educated men, whose quiet and simple lives are devoted to philosophy and teaching, to the exclusion of the common objects of human pursuit. The University will hold high the standards of public duty and public spirit, and will enlarge that cultivated class which is distinguished, not by wealth merely, but by refinement and spirituality.

I felicitate the State of Maryland, whose chief magistrate honors this assembly with his presence, upon the establishment within her borders of an independent institution of the highest education. The elementary school is not more necessary to the existence of a free State than the university. The public-school system depends upon the institutions of higher education, and could not be maintained in real efficiency without them. The function of colleges, universities, and professional schools is largely a public function; their work is done primarily, indeed, upon individuals, but ultimately for the public good. They help powerfully to form and mold aright the public character; and that public character is the foundation of everything which is precious in the State, including even its material prosperity. In training men thoroughly for the learned professions of law and medicine, this University will be of great service

to Maryland and the neighboring States. During the past forty years the rules which governed admission to these honorable and confidential professions have been carelessly relaxed in most of the States of the Union, and we are now suffering great losses and injuries, both material and moral, in consequence of thus thoughtlessly abandoning the safer ways of our fathers. It is for the strong universities of the country to provide adequate means of training young men well for the learned professions, and to set a high standard for professional degrees.

President Gilman, this distinguished assembly has come together to give you God-speed. I welcome you to arduous duties and grave responsibilities. In the natural course of life you will not see any large part of the real fruits of your labors; for to build a university needs not years only, but generations; but though "deeds unfinished will weigh on the doer," and anxieties will sometimes oppress you, great privileges are nevertheless attached to your office. It is a precious privilege that in your ordinary work you will have to do only with men of refinement and honor; it is a glad and animating sight to see successive ranks of young men pressing year by year into the battle of life, full of hope and courage, and each year better armed and equipped for the strife; it is a privilege to serve society and the country by increasing the means of culture; but, above all, you will have the great happiness of devoting yourself for life to a noble public work without reserve, or

stint, or thought of self, looking for no advancement, "hoping for nothing again." Knowing well by experience the nature of the charge which you this day publicly assume, familiar with its cares and labors, its hopes and fears, its trials and its triumphs, I give you joy of the work to which you are called, and welcome you to a service which will task your every power.

The true greatness of States lies not in territory, revenue, population, commerce, crops, or manufactures, but in immaterial or spiritual things; in the purity, fortitude, and uprightness of their people, in the poetry, literature, science, and art which they give birth to, in the moral worth of their history and life. With nations, as with individuals, none but moral supremacy is immutable and forever beneficent. Universities, wisely directed, store up the intellectual capital of the race, and become fountains of spiritual and moral power. Therefore our whole country may well rejoice with you that you are auspiciously founding here a worthy seat of learning and piety. Here may young feet, shunning the sordid paths of low desire and worldly ambition, walk humbly in the steps of the illustrious dead — the poets, artists, philosophers, and statesmen of the past; here may fresh minds explore new fields and increase the sum of knowledge; here from time to time may great men be trained up to be leaders of the people; here may the irradiating light of genius sometimes flash out to rejoice mankind; above all, here may many generations of manly youth learn righteousness.

TEACHERS' TENURE OF OFFICE

Before the Massachusetts Teachers' Association, December 30, 1879

TEACHERS' TENURE OF OFFICE

I DO not propose to deal with the question whether a school committee chosen for one year can make a contract with a teacher for a period longer than its own term of service. If public opinion settles down upon the conviction that a tenure for teachers during good behavior and efficiency is expedient and desirable, some legal way of attaining what is desirable will be found or made.

Passing by, then, this temporary obstruction, we ask at once, What is the best tenure of office for teachers in the public schools? To this important question I find it impossible to give an immediate and unconditional answer. There is a prior question which claims careful consideration, and a subsequent question which must be dealt with in its place. To appoint a teacher for life who had given no proofs of fitness would be obviously absurd. A long tenure of office implies a careful selection of the official. If no judicious method of selecting teachers is used, the shorter their tenure of office the better. An intelligent

school superintendent in a Western city once told me that all his teachers came up for election three times a year, and that he wished it were oftener. It was necessary, he said, to have frequent opportunities of getting rid of teachers, because so many incompetent ones were appointed. The reason was that the teachers were named by a patronage method, as is generally the case in the United States, the patrons being for the most part incompetent to distinguish between promising and unpromising candidates.

Before a long tenure can be claimed for teachers, it is plain that a sound system of selecting and proving them must have been established. I cannot deal with the question of tenure apart from the question of selection. The means of careful selection are two: First, examinations upon the subjects taught in the schools, and such other examinations as may best exhibit the capacities of the candidates. These examinations should include a fair range of optional subjects; for it is rather the candidates' powers of acquiring, than their actual acquisitions, which are to be tested, and it matters little in what particular field of knowledge those powers have been developed. Secondly, probationary service under the eyes of competent judges of teachers' work. There is no dispensing with actual service on probation, if teachers are to be chosen with reasonable care; for examinations can test only knowledge and readiness, whereas the good teacher must also have conscientiousness, enthusiasm, devotion, and force of

character. The possession of these qualities, or the lack of them, can be demonstrated only in active teaching.

There may well be three successive probationary appointments. The term of the first should be short, not exceeding a year; that of the second should be longer, but not more than three years; and that of the third and last five or six years. There is a great advantage in having the period of probationary appointments long enough to bring the teacher up to thirty or thirty-two years of age. By that time men and women generally show what they are going to be. Some early buds wither; some tardy blossoms develop with exceptional vigor. Moreover, with salaried persons marriage ordinarily takes place before that age. That event generally stops a woman's teaching, while in men it often works a serious change, generally for good, but sometimes for evil. On the whole, it is safer to enter into a permanent contract with a man in whom the effect of marriage is already apparent, than with one who has yet to choose his mate.

But here we encounter a difficulty, serious, but by no means insurmountable. Probationary appointments can be of no use whatever unless competent and responsible judges watch the service rendered upon each appointment, and decide upon the expediency of retaining the teacher. Hence the prime necessity of competent superintendence and inspection. It is obvious that a shifting, unpaid, and unprofessional body, like a school com-

mittee, cannot adequately discharge this function of superintendence and inspection. They must delegate it to professional persons of high character, good judgment, and long tenure. There is no need of argument to prove that a system of long tenure for teachers can be successfully carried out only by competent superintendents and inspectors, who themselves are reasonably secure in their positions, and who actually serve for long terms. Long probations imply long-continued observation of the candidates, and a permanent policy deliberately framed and consistently pursued.

The endeavors of the Boston School Committee to organize a permanent board of supervisors deserve the hearty support of all professional teachers; for the maintenance of some such stable authority is essential to the success of all comprehensive plans for improving the condition and prospects of the public-school teacher.

Supposing now that at thirty to thirty-two years of age a teacher has given all the securities for future usefulness which thorough preliminary examination and long probation can supply, we ask what should be the nature of the ultimate appointment? In the interest both of the profession and of the community, it should be an appointment without limitation of time. There should be no recurring election. Nevertheless, the teacher should be subject to removal for inadequate performance of duty or for misconduct, and there should be a regular provision for the retirement of superannuated teachers upon pensions or annui-

ties. I touch here the subsequent question, from which I am not able to disengage the question of tenure: long tenures logically involve pensions or annuities. Further, there should be absolute security against reduction of salary for each individual once admitted to the permanent service. If the financial necessities of cities and towns really compel the reduction of teachers' salaries,— a well-nigh impossible supposition,— these reductions should take effect upon new appointments only, never upon the old. I know that this principle of good public administration is violated at pleasure by our national, State, and municipal governments; but I take leave to say that the practices of our governments in this respect are to the last degree barbarous, shiftless, and uneconomical. It is to be observed that this remark applies only to public administration; the servants of industrial or other private companies of uncertain income cannot be completely protected against the adverse chances of business; but government, whether national, State, or municipal, ought to be able to give its servants two rewards, which to an appreciable extent replace immediate money payment, namely, security of income and public consideration. To throw away, or make no use of, these advantages of its eminent position, is outrageous extravagance on the part of government.

The dignity, independence, and freedom from solicitude of the teacher's life would be greatly enhanced by deliverance from the necessity of securing an annual reëlection, and from apprehension

of reduction of pay. How great a boon is freedom from anxiety for the future! An uncertain tenure is no great hardship in early life, or so long as a man may readily turn from one pursuit to another; but when the prime of life is past, and the stiffened mind no longer bends easily to new tasks, though still apt for familiar labors, an uncertain tenure gives terrible anxiety to one of prudent temperament who has given hostages to fortune.

Again, how precious would be the independence which an assured position would give! — precious to the teacher, and of great value also to the public; for I am persuaded that the public now loses much good advice through the natural caution and reserve of annually elected teachers. Thirdly, security of tenure would increase the public consideration which attaches to the teacher's office. It is an unquestionable fact that the dignity of any office not purely political is greatly affected by the practical length of its tenure.

Let us, then, imagine our representative teacher of proved capacity appointed at thirty or thirty-two years of age, during good behavior, upon an assured salary sufficient for the modest support of a family. He will lead a tranquil, independent, and honorable life, such as promotes longevity, and favors the prolongation of mental and bodily activity within familiar limits to an advanced age. Do we not here encounter a very serious objection to a system of long tenure? Are the schools to be filled with aged teachers? some one will naturally ask. Certainly not, under a

complete and wise system. A regular provision for retiring old teachers on suitable annuities is a necessary supplement to a long-tenure system. It would be very rash for any city or town to appoint even proved teachers without limitation of time, in the absence of any proper means of removing them from the schools when they get tired out, inefficient, or obstructive. Retiring annuities are desirable for three reasons: First, they enable an old teacher, who is disposed to rest from strenuous daily labor, to retire with honor, and enjoy a repose which all the world agrees he has fairly earned. Secondly, they enable the city or town to retire faithful teachers whose services are no longer desirable, and to do this in a considerate, just, and not unacceptable way. Thirdly, the habitual use of retiring annuities, in part voluntarily claimed and in part involuntarily accepted, makes promotion through all the grades of a large service more rapid than it would otherwise be. This is a great object, because the prospect of slow promotion deters ambitious young persons from entering a service which otherwise would attract them. There are many systems of pension, retiring annuity, or superannuation allowance now in use in different services and different nations, none perfectly applicable to our public-school service without modification, but together affording safe guidance to a wise scheme.

It is plain that the administration of any retiring system must be intrusted to some reasonably permanent authority which commands the confi-

dence both of the teachers and of the public. We meet here again the need of a board of disinterested and judicious inspectors permanently employed.

These, then, are the three main features of a well-organized public-school service: careful selection of teachers by examination and probation; ultimate appointment without limitation of time; and a system of retiring annuities. These principles, taken together, either openly avowed or tacitly recognized, are the foundation of every just, economical, and efficient public administration in the world. To doubt the practicability of a system based on these three principles is out of the question; for the combined system has been long in force in several highly civilized nations.

Let me beg of you not to be deterred from giving a candid consideration to the suggestions I have offered by certain alarming adjectives which are sure to be applied to them by superficial critics — undemocratic and un-American, for example. The method of appointment which I have advocated is an unrestricted and prolonged competition before a competent tribunal, which would not be open to any undue influence, and from which no favors could be expected. This process seems to me decidedly more democratic than the prevailing American method of procuring a public place, which method consists, as we all know, first in soliciting recommendations for the place from persons who, for the most part, know little about the duties of the position, or the fitness of the

applicant therefor; and, secondly, in soliciting the place itself at the hands of a patron presumably incompetent to make a judicious selection, and himself in power but for a day. Words have lost their meaning when a patronage method like this is called more democratic than an open competitive method.

It cannot be held that a long tenure is in itself undemocratic; for even under regulations which prescribe annual elections the practical tenure of schoolmasterships in this city has generally been long; and in many other services, such as those of colleges, academies, banks, insurance companies, manufacturing corporations, and railway companies, long tenures of office are practically familiar to our people, and their advantages are well understood. Neither can it be held that pensions are undemocratic. At least that is not alleged concerning the national pensions paid to soldiers, sailors, and judges, or the municipal pensions paid to policemen and firemen. Indeed, each of the two great political parties seems to be mortally afraid that the other will get ahead of it in voting pensions.

But un-American! How shall I meet this easily made objection, which is too intangible to be rebutted by argument? The system of public administration herein advocated is un-American only in the sense that it is not at this moment in force, as a whole, anywhere in the United States. But let us cherish the hope that it is not un-American to accept facts and to make progress.

We need only to be careful to inquire, in an impartial, scientific spirit, whether the system which has been set forth is founded upon the real needs and rational desires of civilized human nature, and is conformed to the dictates of common sense and common justice. If it is, it may not be American to-day, but shall we not try to make it so to-morrow? The flatterer of the people assures them that they have nothing to learn from other nations, and that their present opinions and practices are the wisest possible. He has a far stouter faith in the intelligence and right purposes of the people who believes that they will adopt, as soon as they understand them, any administrative methods which can be shown to be more humane, just, and effective than those they now employ.

ON THE EDUCATION OF MINISTERS

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ON THE EDUCATION OF MINISTERS

WHAT I am about to write is applicable to the Protestant ministry only; and for the most part I have in mind only the Protestant ministry in this country, although many of the facts and principles on which I shall dwell have the same significance in Europe that they have here. Let me protect myself at the start against three possible misconceptions: First, in urging the need of an ampler education for the ministry I do not mean to maintain by implication that there is no need of uneducated ministers. There may be use in the world for devout, uninstructed exhorters; but clearly it is not the business of universities and theological seminaries to provide such a class of men, and an unlimited supply of such preachers would not meet in the least the need of well-trained ministers. Secondly, I am quite aware that men of genius are independent of systematic training and instituted education. They educate themselves; they are impatient of

the easy highway, and, leaping the barriers which common men find insurmountable, they rush to the goal of all training — power. But neither the ministry, nor any other learned profession, contains many geniuses: not one man in a thousand in any profession has even a spark of that divine fire. The practical question always is, How are industrious and faithful men of good natural parts to be so trained and equipped as to give them intellectual and moral superiority? Thirdly, if in this paper I say nothing about the sensibility, earnestness, and piety which should characterize the minister, it is not because I do not know that these qualities are essential to the success of his work. I propose to deal only with the surroundings and mental furnishing of the minister, not with his inspiration.

My subject, thus limited, may be conveniently stated in two propositions, as follows: I. The position and environment of the Protestant minister have changed fundamentally within a hundred years. II. To fit him for his proper place in modern society much greater changes ought to be made in his traditional education than have heretofore been attempted.

I. Not many centuries ago the clergy were the only men who could read and write; only one century ago they were a large majority of all the men who could be said to lead intellectual lives. In the ten years from 1761 to 1770 the percentage of ministers among the graduates of Harvard College was 29, of Yale 32, and of Princeton 45. In other

words, one third of all the educated men were ministers. In the six years from 1871 to 1876 the percentage of ministers among the graduates of the same institutions was in Harvard 5¾, in Yale 7, in Princeton 17; that is, not more than one in thirteen of the graduates of these colleges became a minister. I lately published a table which exhibited the occupations of 1226 recent graduates of Harvard College. It appeared from this table that two thirds of the whole number had entered professions which may be called learned, namely, law, medicine, theology, the scientific professions, and teaching; but of these two thirds only one man in thirteen was a minister, and the other twelve count themselves fully his equal in intelligence and capacity. If, however, we would fully appreciate the very different competition, so to speak, to which the minister of to-day is subjected from that to which his predecessor of one hundred years ago was exposed, we must go quite beyond these statistics, and consider the undeveloped condition a century ago of the other professions called learned, and the absence of what we now call the press. No public provision was then made for systematically training men for any profession except the ministry. A youth who aspired to be a lawyer or physician could only put himself under the instruction of some established practitioner. The class of men and women who now teach in high schools, academies, and private classical schools did not exist at all. The scientific professions were not so much as conceived of. The practice

of the law related chiefly to real-estate disputes and the collection of debts by the process of imprisonment — except, of course, that a few eminent men, who lived in or near the maritime ports, got a better business out of shipping or politics. Medicine was an empirical art; and although it was practised by a few men of great natural powers, the barber-surgeon and the ignorant midwife were by no means extinct. Most important of all in this comparison, the modern newspaper, the periodical, and the cheap book did not exist. The weekly sermons and prayer-meetings were almost the sole intellectual exercises of our ancestors in the last century, except for the very few who could afford the costly luxury of books. In our time, four days' labor of one man will pay for more reading matter than an ordinary farmer's or mechanic's family will care to read in a year, namely, a local paper, a religious paper, a magazine, and some cheap editions of current books. The minister in the quietest village, as well as in the manufacturing town and the great seaport, is in competition with this new teacher, the press, which by the regular and frequent public mails delivers its lessons in every household. It is very clear, then, that the competitors of the minister for consideration and influence have increased extraordinarily in number and power during the past hundred years.

Let us next consider how very different the condition of society is to-day from its condition when Channing was born (1780), and how deeply the great social changes which have taken place since

the Revolution have affected the work of the ministry. The principle of association for purposes of business, charity, worship, instruction, or pleasure has been so extended that the extension amounts to the introduction of a new principle. There were partnerships, and in rare cases companies, for business purposes in older times, but no corporations in the modern sense. The church was upheld by the only body corporate, namely, the state. The noun "operative" was not in the dictionary at the time of our Revolution, that mode of human life not yet existing. There was no continual discussion of such social evils as intemperance, prostitution, divorce, and pauperism, and no associated action in contending against these evils. The distinction between rich and poor was far from being as wide and deep as it is now among us. Our forefathers acted as if they had received and acquiesced in the doctrine of the survival of the fittest a century in advance of its discovery; the sickly among them died, the insane languished or raged in hopeless confinement; and the poor and shiftless went hungry and cold. No philanthropic notions confused their clear views about the judgments of God and His afflictive providences. No sanitary science disquieted them with the suggestion that results which they attributed to the wrath of God might with greater probability be ascribed to the negligence of man. How profoundly changed are the beliefs and expectations of the public on all these subjects! There is no social problem to-day, however difficult, upon

which the minister is not expected to have his mind made up, and to be ready for action. Yet the evils to which these problems relate are extraordinarily complicated in their origin and development, and the remedies for them are notoriously difficult to devise and apply, slow-working, and hard to follow out in practical operation. Sentiment is a very unsafe guide in these matters; and the coolest philosopher, acquainted with political economy, medicine, and the history of legislation on behalf of public morality, will be often at fault. All these difficulties which beset the minister of to-day are of recent origin; in this country they hardly antedate the present century. When our grandfathers were in their prime the sciences of chemistry, zoölogy, and geology were in a very rudimentary condition, while electricity had hardly been discovered; moreover, no natural science had been as yet popularized. The word attributed to God had not been critically compared with His works.

Thirdly, we are to observe that the temper of the public mind has undergone a wonderful change, within a century, upon several points which vitally affect the clerical profession. In the first place, the weight of all authority has greatly diminished, and the sources of recognized authority are quite different from what they were a century ago. The priest, like the secular ruler, has lost all that magical or necromantic quality which formerly inspired the multitude with awe; and the divine right of the minister is as dead

among Protestants in our country as the divine right of kings. The authority of the minister is now derived from the purity and strength of his character, from the vigor of his intelligence and the depth of his learning, and from the power of his speech. Candor, knowledge, wisdom, and love can alone give him authority. His cloth, his office, and his sacerdotal quality no longer command in themselves the respect they once did; forms, rites, and ceremonies may protect him from rude assault, but can give him no particle of power. Again, the people in these days question all things and all men, and accept nothing without examination. They have observed that discussion often elicits truth, that controversy is useful on many difficult subjects, and that in some circumstances many heads are better than one; hence they have learned to distrust all ex-cathedra teaching, and to wait for the consent of many minds before giving their adhesion to new doctrines. We hardly realize how very recently the masses have acquired these invaluable habits, or how profoundly these habits have affected the position of the minister. To the modern mind the exemption of the minister from instant debate carries with it a loss of influence. The lawyer daily encounters his adversary, the business man his competitor, and the statesman his political opponent: but no one answers the minister; and the people think that a protected man may not be a strong man. Thirdly, political ideas have had in this century and this country a strong influence upon theological ideas. The old

monarchical and military metaphors which have long been used to set forth the nature of God are less satisfying in our day than they were once; for king, prince, conqueror, and lord of hosts are less majestic titles than they used to be. The grand and beautiful image which rises before our minds at the words "our country" is seen to be an immeasurably worthier object of devotion than any human potentate, and a better symbol of the infinite God. In the brief period since the welfare of the many came to be recognized as the prime object and only legitimate aim of human governments, men's ideas have changed considerably about the government of God. When men perceive that popular governments are possible, and that such governments have been able, even in the course of the few generations during which the right ends of all government have been recognized, sensibly to improve the condition of great masses of mankind, they naturally begin to doubt if men be totally depraved, and if the main object of God's government from eternity to eternity has been the welfare of an elect few of only one species out of the many kinds of creature that joy to live upon this earth; to question the authenticity of alleged revelations which are said to contain such doctrine; and to distrust religious teachers whose tenets seem to be so at variance with the cherished political convictions and hopes of the people. In former times religion, with mistaken views of its own function and that of government, bolstered arbitrary power; in our day the principles of free

government are undermining the false tenets of religion, but not the true. The Protestant ministry as a whole will not recover their influence with the people of this country, until the accepted dogmas of the churches square with the political convictions of the people. This intimate connection between the religion of a people and their politics is no new thing: it is to be seen in the history of all great peoples; and it is likely to continue to manifest itself, "religion," as Lord Bacon says, "being the chief band of human society."

We come now, in the fourth place under this head, to the most potent cause of change in the relative position of the ministry within this century, namely, the rise and development of physical and natural science. The immense acquisitions of actual knowledge which have been amassed in this new field, the great increase of man's power over nature, the consequent changes in each man's relation to his fellow-men and to the physical earth, including the wonderful expansion of his interests and sympathies, his emancipation from superstitions, and the exaltation of his prospects and hopes, are all facts of the utmost moment to the race; but it is not these facts, tremendous though they are, which most concern us in the present discussion. The important point for us now to observe is that, during the growth of natural science, a new method, or spirit, of inquiry has been gradually developed, which is characterized by an absolute freedom on the part of the inquirer from the influence of prepossessions or desires as to results.

This spirit seeks only the fact, without the slightest regard to consequences; any twisting or obscuring of the fact to accommodate it to a preconceived theory, hope, or wish, any tampering with the actual result of investigation, is the unpardonable sin. It is a spirit at once humble and dauntless, patient of details, drawing indeed no distinction between great and small, but only between true and false; passionless but energetic, venturing into pathless wastes to bring back a fact, caring only for truth, candid as a still lake, expectant, unfettered, and tireless.

> Work of his hand
> He nor commends nor grieves:
> Pleads for itself the fact;
> As unrepenting Nature leaves
> Her every act.

The achievements of scientific inquirers, animated by this spirit of sincerity and truth, have been so extraordinary within the past sixty years, and this candid spirit is in itself so admirable, that the educated world has accepted it as the only true inspiration of research in all departments of learning. No other method of inquiry now commands respect. Even the ignorant have learned to despise the process of searching for proofs of a foregone conclusion. Apologetics have ceased to convince anybody, if they ever did. Thus the civilized world has set up a new standard of intellectual sincerity, and Protestant theologians and ministers must rise to that standard, if they would

continue to command the respect of mankind. How different was the situation of the profession when diplomacy was the only other learned calling! Even the legal profession, as it was gradually differentiated from the clerical, made no such sharp requisition of mental honesty and independence. It is the electric light of science which has made white and transparent the whole temple of learning.

These remarks imply that ministers, as a class, and as a necessary consequence of the ordinary manner of their education and induction into office, are peculiarly liable to be deficient in intellectual candor; and that is what I, in common with millions of thoughtful men, really think; and I think further that this belief on the part of multitudes of educated men, most of whom are silent on the subject, is a potent cause of the decline of the ministry during the past forty years. The fault is quite as much that of the churches or sects as of the individual ministers; for almost every church or sect endeavors to tie its members, and particularly its ministers, to a creed, a set of articles, or a body of formulas. These bonds are put on by most ministers at an early age, and must be worn all their lives, on peril of severing beloved associations, or perhaps losing a livelihood. The study, reading, and experience of fifty years are supposed to work no essential change in the opinions of the youth. The creed, or the articles, may be somewhat vague and elastic, but cannot honestly be stretched much. Now the lay world believes in the progress of knowledge, because it has

witnessed progress; and it is persuaded that there must be incessant progress in theological science as well as in all other branches of learning. It does not see metaphysicians, physicians, historians, chemists, zoölogists, or geologists committing themselves in youth to a set of opinions which is to last them a lifetime, or even a day; on the contrary, it sees all these classes of scholars avowedly holding their present opinions subject to change upon the discovery of new facts or of better light upon old facts, and, as a rule, actually modifying their opinions in important respects between youth and age. Indeed, fixity of opinion is hardly respectable among scholars. If it be said that there can be no progress in theology, because revelation was a fixed historical quantity, the answer is that revelation, like creation, must be fluent; or, in other words, that the interpretation of revelation to the mind of man must be like the interpretation of creation, ever flowing, shifting, and, if the mind of man improves, improving. No other profession is under such terrible stress of temptation to intellectual dishonesty as the clerical profession is; and at the same time the public standard of intellectual candor has been set higher than ever before. This is the state of things which deters many young men of ability and independence from entering the profession, and causes the acknowledged dearth of able ministers. Doubtless public opinion is not perfectly just to the profession, and doubtless the evil which deters young men of promise from entering the ministry is less

grave than they think it to be; but the serious facts remain, namely, that public opinion among laymen is adverse to the profession on this point, and that young men of force are deterred by the sight of this evil from entering it.

Finally, it is to be observed that the position of a minister is less stable and his livelihood less certain than it was in the last century. His hold upon his congregation is now purely personal, and is quite unsupported by the state or by any ecclesiastical authority. On the other hand, the average pay of ministers is now larger in proportion to the prices of prime necessaries than it was in the last century, and there are many prizes in the profession of large value as regards both money and consideration. In view of these numerous prizes and the small competition for them, the profession is not unattractive pecuniarily. It is not the average earnings in any learned profession, but its few prizes, which induce ambitious young men to enter it.

In 1824 Channing said at the ordination of his colleague: "The communication of moral and religious truth is the most important office committed to men." Forty-five years ago next summer Emerson said to the senior class of the Harvard Divinity School: "To this holy office you propose to devote yourselves. I wish you may feel your call in throbs of desire and hope. The office is the first in the world." The opinion expressed by these two seers rested simply on observation, reason, and experience; they pronounced the judgment of all

ages and of all mankind; nothing has ever happened to invalidate it, and every advance which the race has made in knowledge and power has confirmed it. There is no doubt as to the rank of the office; but there is a practical question how men may be made fit to hold it. The calling of the preacher is more difficult now than it has ever been, but it is also loftier, and it ought to be more attractive. The improvement of his hearers in general intelligence, range of interests, and inquisitiveness is a gain to him, not a loss; that he has more comrades in the intellectual life than his predecessors had should be a satisfaction to him; that he has many worthy competitors, who with their various messages claim the public ear, should be no discouragement to him, but rather a stimulus; that greater demands are now made upon the knowledge and judgment of the minister in practical affairs than formerly should only prompt the aspirant to prepare himself to meet those demands; that the adventitious distinctions of the profession have come to naught should delight him. It is indubitable that the political changes of the past century have been for the better, that the progress of science has made the earth a more cheerful and comfortable home for the race than it ever was before, and that modern society is better worth preaching to than any earlier society. Material well-being has wonderfully increased, but it was never plainer than it is now, that "man shall not live by bread alone." Many new avenues to distinction and usefulness have been opened to

men of vigor, but never had the true priest so high a station and so great an influence as he has to-day. As Emerson said in the address already quoted, "Discharge to men the priestly office, and, present or absent, you shall be followed with their love as by an angel."

It is then a practical and a timely inquiry, How can young men be better trained than they have ever been to discharge the priestly office; how can the traditional education of a minister be modified and enlarged so as to enable him to meet the new demands which modern society makes upon him? I take up here the second branch of my subject, namely, the proposition that to prepare the minister for his work in modern society grave changes ought to be made in his traditional education.

II. In the first place, theological study, if it is to be respected by laymen, must absolutely be carried on with the same freedom for teacher and pupil which is enjoyed in other great departments of learning. This fundamental principle does not at all imply, as some have supposed, that teachers of theology (I use that term in the widest sense) are to have no convictions, or at least are to express none. It simply means that the teacher is free to think and say whatever seems to him good, and to change his mind as often as he likes; and that the pupil is free to adopt whatever opinions or theories most commend themselves to his judgment after he has studied the subject. This academic freedom is much more likely to be obtained in universities, and in cities which are large enough to be

centers of diversified intellectual activity, than it is in isolated denominational seminaries. I see, therefore, with satisfaction that students of theology in this country resort more and more to universities and to seminaries situated in large cities.

Secondly, two practices which greatly discredit the ministry in the eyes of laymen ought to be stopped: I mean, first, the practice of subsidizing boys in academies and colleges from the funds of sectarian societies, on the understanding that the beneficiaries will subsequently go into the ministry; and, secondly, the practice of supporting in theological seminaries, and ultimately imposing upon parishes, young men of small mental capacity and flaccid physical or moral fiber. The belief prevalent among laymen that boys are tempted to pledge themselves to the clerical profession by the attractive offer of a liberal education, and that incompetent and unworthy persons are drawn into the seminaries by the standing offer of gratuitous board, lodging, and instruction, works incalculable injury to the Protestant ministry. This belief wounds the reputation of the profession in its most vital part; for it impairs confidence in its sincerity. The gratuitous character of the ordinary theological training supplied by denominational seminaries is in itself an injury to the Protestant ministry. It would be better for the profession, on the whole, if no young men could get into it except those whose parents are able to support them, and those who have capacity and energy enough to earn their own way. These

tests constitute a natural method of selection, which has long been applied in the other learned professions to their great advantage. Exceptions should be made in favor of needy young men of decided merit and promise, to whom scholarships should be awarded on satisfactory tests of ability and character.[1] It is much to be wished that young men who are not entirely dependent on their own earnings — sons of well-to-do people, for example — should go into the ministry, as they are constantly going into law and medicine. The profession has much to offer besides an honorable livelihood: it offers to the fit man consideration, the sense of usefulness, and the great privilege of giving himself to the highest human interests and keeping his mind full of great themes. A young

1 The usefulness of beneficiary endowments seems to me to depend upon the strict observance of the following rules of administration: 1. No aid should be promised merely on recommendations or certificates, or in advance of satisfactory tests of scholarship and character. 2. All awards should be based upon merit, and merit alone. 3. No aid should be given except to persons of unquestionable promise — physical, mental, and moral. 4. An immediate return for the aid should be exacted in good scholarship. 5. The aid should fall short of complete support, except in the case of advanced students who seem capable of such researches as promote the progress of knowledge. 6. All awards should be public, the conditions of award being in every respect calculated to make the receipt of beneficiary aid honorable. 7. No pledges, either explicit or implied, should be taken from beneficiaries in regard to religious belief, personal habits, or future profession, and no services or observances should be expected of them which are not expected of other students, unless, indeed, they are able to aid in the teaching. The injury, which the undiscriminating use of the large beneficiary funds possessed by some of the most considerable education societies and theological seminaries in this country has inflicted, as I think, upon the clerical profession, is by no means without remedy; but the evil must be recognized by the responsible managers of such endowments before it can be cured.

man who has a modest competency, or whose parents can support him, as parents support for years young lawyers and physicians, enters the clerical profession with this great advantage over a man who has no means of living except his salary: he is known to be independent of the pecuniary relation with his congregation, and this recognized independence strengthens their faith in his sincerity and disinterestedness.

Thirdly, let us consider what the mental furnishing of a minister ought to be. The subjects which in our day should be set before a candidate for the ministry are divisible into two classes: those which every candidate should master, and those from which every candidate should make a limited selection. In any respectable university all the subjects which I am about to enumerate will be somewhere taught, and it does not matter for our purpose in what department the student finds the teacher he needs; but since many of the required subjects are not taught at all in ordinary theological seminaries, it would be necessary for a student who proposed to attend a seminary not connected with a university to pursue elsewhere some of the preliminary studies. In universities, properly so called, a zealous student ought to have no difficulty in mastering all the preliminary required subjects while a candidate for the degree of Bachelor of Arts, and in counting them all toward that degree. The preliminary subjects which every student of theology should in my judgment be required to master are as follows:

1. Languages: Greek (including New Testament Greek), Latin, Hebrew, and German.

2. English literature, with practice in writing, and study of style.

3. The elements of psychology.

4. The elements of political economy.

5. Constitutional history, or the history of some interesting period of moderate length.

6. Science: botany, zoölogy, or geology, studied in the laboratory and the field.

The requisitions in the languages other than English are the only ones in this list which are now habitually enforced in theological seminaries. The acquisition of a reasonable facility in reading should be the main object in view while studying all four languages. These linguistic studies are valuable for training, for the ideas and information acquired, and, in the case of Latin and German, for the power to be gained of studying other subjects in books written in either of these languages. A minister greatly needs — no matter whether his congregation be cultivated or uncultivated — a comprehensive and critical acquaintance with English literature; yet how few have it! At present, the theological seminaries enforce no requisitions on this subject; and since many American colleges pay very little attention to it, the degree of Bachelor of Arts is no evidence that the graduate has had an adequate opportunity of studying English literature systematically. If it be said that this subject can be left to after years and private reading, I reply that there is no study in which

good guidance is of more value, that large libraries are not accessible in every parish, and that the policy of leaving the subject to each man's after study has been tried long and found utterly wanting. That a minister should know something of the science which deals with the phenomena of mind requires no urging. A knowledge of the first principles of political economy would be useful to the minister in several ways: first, to guide him in charitable and reformatory undertakings; secondly, to guard him against making public mistakes about trade, finance, taxation, capital, labor, and similar topics which are sure to be more familiar to some of his parishioners than to him; and, thirdly, to offset the general drift of his habitual studies toward a too sentimental philanthropy. The preliminary education of a minister should embrace some fragment of political history in order that he may early learn how all history is to be studied. The constitutional history of England or of the United States, or the history of some important period — like the period of the Reformation, or of the English Commonwealth, or of the French Revolution,— will answer the purpose. Much more depends upon the method of instruction than upon the choice of a topic. Finally, a minister ought to have gained in youth a good knowledge of at least one branch of natural history, that his powers of accurate observation and description may be cultivated, and that he may learn to comprehend the scientific habit of mind and the scientific method of study. Keen powers of observation serve a

minister as well as they serve a poet. The educated and the uneducated alike respect those powers, and enjoy the fruits of their exercise. People will be delighted to hear him describe things which they have often seen but never noticed, and draw fresh lessons from facts they have always known but never put together. A sober love of nature underlies and reinforces love to God and love to man: these sentiments belong together; dissociated they are impaired. No religious teacher can avoid dealing sometimes with the relations of man and God to nature; for these subjects are intensely interesting alike to simple and to cultivated minds. The minister will deal much more wisely with these great themes, if he has an intimate acquaintance with some small field in nature's vast domain.

Having finished the preliminary required studies, the candidate for the ministry is ready to enter upon the advanced studies which may properly be called professional. Since preaching is to be his most important function, he will naturally give a good share of his time to homiletics and the practice of writing and speaking. The other subjects which are now included under the comprehensive term "theology" or "divinity" may be grouped as follows:

1. Semitic studies—linguistic, archæological, and historical.
2. New Testament criticism and exegesis.
3. Ecclesiastical history.
4. Comparative religion, or historical religions compared.

5. Psychology, ethics, and the philosophy of religion.

6. Systematic theology, and the history of Christian doctrines.

7. Charitable and reformatory methods, and the contest of Christian society with licentiousness, intemperance, pauperism, and crime.

The mere enumeration of these subjects will satisfy any reasonable person that if no more than three years is ordinarily to be given to theological study, election must be allowed among the groups, or no thorough acquaintance with any subject will be attained. The subjects have sufficient range to meet a great variety of tastes and capacities: they are philological, historical, philosophical, and practical. Any three of these seven groups thoroughly studied, in addition to homiletics and the preliminary required studies, would in my judgment give a far better training for the duties of a Protestant minister in our day than is now offered in any theological seminary within my knowledge. It may be objected to this scheme that it will admit men to the degree of Bachelor of Divinity and to the pulpit, who may never have studied church history, or New Testament criticism, or even systematic theology. This result would be possible, and certainly it is not in itself desirable; but let us look at the compensating advantages of the system. In the first place, let me urge the supreme importance of making an exhaustive study of one or two limited subjects, for the effect of such study upon the whole mental and moral dis-

position. It is the hasty and superficial student who is conceited, presumptuous, and rash. The master is humble, unassuming, and cautious. Secondly, let me point out that theology is already a field so vast that no man can survey it all within three years, even in the hastiest manner, and that it is daily growing vaster still, by the indefinite extension of some of its old subjects, and by the addition of new ones. It is hopeless to try to cover such a field. Thirdly, let it be observed that the object to be held in view in training a young man for the ministry is the imparting of power, not of information, and that the most important step toward getting mental power is the acquisition of a right method in work and a just standard of attainment. But a right method of work may be acquired in the conscientious study of any one of the groups into which I have roughly divided the present subjects in theology; for the true spirit of research is the same in all fields, namely, the free, fair, fearless, and faithful spirit of modern science.

The education of a minister should not end with the theological school, but should be prolonged, like that of a teacher or physician, to the latest day of his life. He must always be learning and growing. To this end he must make time to read and study every week, and he ought to keep on hand some more continuous and erudite work than sermon-writing. Most ministers run dry, or pump the same water over and over again, like the pumps on exhibition at a fair which draw only

from the little box into which they discharge. To guard against this danger, the minister must draw day by day from the living springs of literature, science, and art. The churches are greatly responsible for the desiccation of ministers. They expect from the minister too many services a week; they swaddle him in forms; they look for pastoral visits; they give him insufficient vacations; and they drive or entice him into the fatal habit of prolonged, unpremeditated speech.

It would be a great improvement in the relation between minister and congregation if the minister were frankly allowed sometimes to comment upon a fresh book instead of preaching a sermon, sometimes to read other men's sermons instead of his own, and in general to direct his hearers to good reading, and bring them to know something of the minds and works of the leaders of the race, living and dead. The wise professor or teacher thinks it a very important part of his function to direct the reading of his pupils, and he tries to give that reading as wide a range as possible. If he were forced to do nothing for his pupils but lecture to them himself, he would feel as if he had been thrown back into the middle ages. The habits of the pulpit in this respect are a survival of the dark times before printing. Objection may be made to this view, that the religious teacher, unlike the secular teacher, needs but one book — the Bible, to which indeed the Anglican Church would add the Prayer-book. Such an objector would probably think of a minister chiefly as a

public reader; for if he admitted the idea that the minister might be also an expositor or commentator, there would immediately arise a demand for a variety of comment or exposition, and other books would thereby be let in. The voluminous issues of the evangelical religious press supply the readiest answer to this objection. It is not given to every able and well-educated man to originate much useful thought; he also does good service who quotes judiciously, compiles well, and knows where to borrow. A skilful and honest purveyor of good mental food is an invaluable person, and a congregation ought to be highly content if it discovers in its minister the gifts of a good purveyor.

Finally, the minister whose education is to be prolonged throughout his life must have liberty of thought and speech. Many a minister is half afraid to read and study freely, lest he should grow out of his decorous clerical garments. The churches do not give their ministers room enough to grow in. They settle a young man of twenty-five, fresh from a monastic life and with very little knowledge of the world, and expect him to announce a set of opinions on the greatest subjects of human speculation and experience, which he is to hold to during life. For changes of opinion on points which no discreet and impartial person would consider essential to Christian character or right living, a minister finds himself obliged to leave one denomination and seek refuge in another, or to leave one church and go into another; and every change is cause of reproach and offense. Other learned

professions are not so hampered, and if the Protestant ministry is to hold its own in the modern world, it must have, and be believed to have, freedom of growth. Whether the creeds and confessions of the Protestant sects are to be recast or not by councils or synods, no one can tell, and it is not very important to inquire; for the needed liberty may be procured through the quiet action of single churches, or of small councils and local conventions, quite as well as by more general action. When the Protestant churches clearly perceive that creed-stretching and creed-blinking are in the eyes of the immense majority of intelligent laymen demoralizing and contemptible practices, they will find some remedy for the evil conditions which foster these practices. Their own history may well incline them to accord to their ministers some reasonable right of private judgment.

WHAT IS A LIBERAL EDUCATION?

The "Century," June, 1884

WHAT IS A LIBERAL EDUCATION?[1]

THE general growth of knowledge and the rise of new literatures, arts, and sciences during the past two hundred and fifty years have made it necessary to define anew liberal education, and hence to enlarge the signification of the degree of Bachelor of Arts, which is the customary evidence of a liberal education. Already the meaning of this ancient degree has quietly undergone many serious modifications; it ought now to be fundamentally and openly changed.

The course of study which terminates in the degree of Bachelor of Arts ordinarily covers from seven to ten years, of which four are spent in college and three to six at school; and this long course is, for my present purpose, to be considered as a whole. I wish to demonstrate, first, that the number of school and college studies admissible with equal weight or rank for this highly valued

[1] This paper was read on the 22d of February last before the members of the Johns Hopkins University at Baltimore, an institution which from its establishment in 1876 has effectually promoted many of the reforms herein advocated.

degree needs to be much enlarged; secondly, that among admissible subjects a considerable range of choice should be allowed from an earlier age than that at which choice is now generally permitted; and, thirdly, that the existing order of studies should be changed in important respects. The phrase "studies admissible with equal weight or rank" requires some explanation. I use it to describe subjects which are taught with equal care and completeness, are supported by the same prescriptions, and win for their respective adherents equal admission to academic competitions, distinctions, and rewards, and equal access to the traditional goal of a liberal education, the degree of Bachelor of Arts. Coördinate studies must be on an equal footing in all respects: of two studies, if one is required and the other elective, if one is taught elaborately and fully and the other only in its elements, if honors and scholarships may be obtained through one and not through the other, if one may be counted toward the valuable degree of Bachelor of Arts and the other only toward the very inferior degree of Bachelor of Science or Bachelor of Philosophy, the two studies are not coördinate — they have not the same academic weight or rank.

The three principal propositions just enunciated lead to consequences which at first sight are repulsive to most men educated in the existing system. For example, it would follow from them that children might not receive the training which their fathers received; that young men educated simul-

taneously in the same institutions might not have knowledge of the same subjects, share precisely the same intellectual pleasures, or cultivate the same tastes; and that the degree of Bachelor of Arts would cease to indicate — what it has indicated for nearly three hundred years — that every recipient had devoted the larger part of his years of training to Latin, Greek, and mathematics. Proposals which lead to such results inevitably offend all minds naturally conservative. The common belief of most educated men in the indispensableness of the subjects in which they were themselves instructed reinforces the general conservatism of mankind in regard to methods of education; and this useful conservatism is securely intrenched behind the general fact that anything which one generation is to impart to the next through educational institutions must, as a rule, be apprehended with tolerable precision by a considerable number of individuals of the elder generation. Hence a new subject can force its way only very gradually into the circle of the arts called liberal. For instance, it was more than a hundred years after the wide-spread revival of Greek in Europe before that language was established at Paris and Oxford as a regular constituent in the academic curriculum; and physics and chemistry are not yet fully admitted to that curriculum, although Robert Boyle published his "New Experiments touching the Spring of the Air" in 1660, Lavoisier analyzed water in 1783, Galvani discovered animal electricity in 1790, and John Dalton published his "New

System of Chemical Philosophy" in 1808. Indeed, so stout and insurmountable seem the barriers against progress in education, as we look forward, that we are rather startled on looking back to see how short a time what is has been.

It is the received opinion that mathematics is an indispensable and universal constituent of education, possessing the venerable sanction of immemorial use; but when we examine closely the matters now taught as mathematics in this country, we find that they are all recent inventions, of a character so distinct from the Greek geometry and conic sections which with arithmetic represented mathematics down to the seventeenth century, that they do not furnish the same mental training at all. As Whewell pointed out forty years ago, modern mathematics — algebra, analytic geometry, the differential and integral calculi, analytical mechanics, and quaternions — has almost put out of sight the ancient form of mathematical science. Leibnitz published his "Rules of the Differential Calculus" in 1684, Newton his "Method of Fluxions" in 1711, Euler his "Institutiones Calculi Integralis" in 1768–70; but Lagrange, Laplace, Monge, Legendre, Gauss, and Hamilton, the chief promulgators of what we now call mathematical science, all lived into or in this century. The name of this well-established constituent of the course of study required for the baccalaureate is old, but the thing itself is new. A brief citation from the conclusion of Whewell's prolix discussion of the educational value of mathematics, in his treatise entitled "Of

a Liberal Education," will explain and fortify the statement that the mental discipline furnished by the mathematics of Euclid and Archimedes was essentially different from that furnished by the analytical mathematics now almost exclusively in use:

> On all these accounts, then, I venture to assert, that while we hold mathematics to be of inestimable value as a permanent study by which the reason of man is to be educated, we must hold also that the geometrical forms of mathematics must be especially preserved and maintained, as essentially requisite for this office; that analytical mathematics can in no way answer this purpose, and, if the attempt be made so to employ it, will not only be worthless, but highly prejudicial to men's minds.

The modern analytical mathematics, thus condemned by Whewell, is practically the only mathematics now in common use in the United States.

Again, it is obvious that the spirit and method in which Latin has been for the most part studied during the present century are very different from the spirit and method in which it was studied in the preceding centuries. During this century it has been taught as a dead language (except perhaps in parts of Italy and Hungary), whereas it used to be taught as a living language, the common speech of all scholars, both lay and clerical. Those advocates of classical learning who maintain that a dead language must have more disciplinary virtue than a living one would hardly have been satisfied with the prevailing modes of teaching and learning Latin in any century before our own. At

any rate, it was a different discipline which Latin supplied when young scholars learned not only to read it, but to write and speak it with fluency.

I venture to inquire next how long Greek has held its present place in the accepted scheme of liberal education. Although the study of Greek took root in Italy as early as 1400, and was rapidly diffused there after the fall of Constantinople in 1453, it can hardly be said to have become established at Paris as a subject worthy the attention of scholars before 1458, or at Oxford before the end of the fifteenth century. At Paris, for many years after 1458, Greek was taught with indifferent success, and its professors, who were mostly foreigners, were excluded from the privileges of regency in the University. Indeed, the subject seems to have long been in the condition of what we should now call an extra study, and its teachers were much in the position of modern-language teachers in an American college, which does not admit them to the faculty. Grocyn, Linacre, and Latimer, who learned Greek at Florence, introduced the study at Oxford in the last years of the fifteenth century; but Anthony Wood says that Grocyn gave lectures of his own free will, and without any emolument. It is certain that in 1578 the instruction in Greek which was given to undergraduates at Cambridge started with the elements of the language; and it is altogether probable that Greek had no real hold in the English grammar schools until the end of the sixteenth century. The statutes which were adopted by the University of Paris in the year

1600 define the studies in arts to be Latin, Greek, Aristotle's philosophy, and Euclid; and they make Greek one of the requirements for admission to the School of Law. It took two hundred years, then, for the Greek language and literature gradually to displace in great part the scholastic metaphysics which, with scholastic theology, had been for generations regarded as the main staple of liberal education; and this displacement was accomplished only after the same sort of tedious struggle by which the new knowledges of the eighteenth and nineteenth centuries are now winning their way to academic recognition. The revived classical literature was vigorously and sincerely opposed as frivolous, heterodox, and useless for discipline; just as natural history, chemistry, physics, and modern literatures are now opposed. Precisely the same arguments were used by the conservatives of that day which are brought forward by the conservatives of to-day, only they were used against classical literature then, while now they are used in its support. Let it not be imagined that the scholastic metaphysics and theology, which lost most of the ground won by Greek, were in the eyes of the educated men of the twelfth to the sixteenth century at all what they seem to us. They were the chief delight of the wise, learned, and pious; they were the best mental food of at least twelve generations; and they aroused in Europe an enthusiasm for study which has hardly been equaled in later centuries. When Abélard taught at Paris early in the twelfth century, thousands of pu-

pils flocked around his chair; when the Dominican Thomas Aquinas wrote his "Summa Theologiæ," and lectured at Paris, Bologna, Rome, and Naples, in the middle of the thirteenth century, he had a prodigious following, and for three centuries his fame and influence grew; when the Franciscan Duns Scotus lectured at Oxford at the beginning of the fourteenth century, the resort of students to the University seems to have been far greater than it has ever been since. We may be sure that these wonders were not wrought with dust or chaff. Nevertheless, the scholastic theology and metaphysics were in large measure displaced; and for three hundred years the classical literatures have reigned in their stead.

Authentic history records an earlier change of a fundamental sort in the list of arts called liberal, and consequently in the recognized scheme of liberal education. When Erasmus was a student, that is, in the last third of the fifteenth century, before Greek had been admitted to the circle of the liberal arts, the regular twelve years' course of study included, and had long included, reading, arithmetic, grammar, syntax, poetry, rhetoric, metaphysics, and theology, all studied in Latin; and of these subjects metaphysics and theology occupied half of the whole time, and all of the university period. But in the eleventh century, before Abélard founded scholastic theology, the authoritative list of liberal studies was quite different. It was given in the single line:

Lingua, tropus, ratio, numerus, tonus, angulus, astra.

Most students were content with the first three — grammar, rhetoric, and logic; a few also pursued arithmetic, music, geometry, and astronomy, if these grave names may be properly applied to the strange mixtures of fact and fancy which in obscure Latin versions of Greek and Arabian originals passed for science. It was this privileged circle which scholastic divinity successfully invaded at the beginning of the twelfth century, the success of the invasion being probably due to the fact that religion was then the only thing which could be systematically studied.

This hasty retrospect shows, first, that some of the studies now commonly called liberal have not long held their present preëminence; and, secondly, that new learning has repeatedly forced its way, in times past, to full academic standing, in spite of the opposition of the conservative, and of the keener resistance of established teachers and learned bodies, whose standing is always supposed to be threatened by the rise of new sciences. History teaches boldness in urging the claims of modern literatures and sciences to full recognition as liberal arts.

The first subject which, as I conceive, is entitled to recognition as of equal academic value or rank with any subject now most honored is the English language and literature. When Greek began to revive in Europe, English was just acquiring a literary form; but when Greek had won its present rank among the liberal arts, Shakspere had risen, the English language was formed, and English

literature was soon to become the greatest of modern literatures. How does it stand now, with its immense array of poets, philosophers, historians, commentators, critics, satirists, dramatists, novelists, and orators? It cannot be doubted that English literature is beyond all comparison the amplest, most various, and most splendid literature which the world has seen; and it is enough to say of the English language that it is the language of that literature. Greek literature compares with English as Homer compares with Shakspere, that is, as infantile with adult civilization. It may further be said of the English language that it is the native tongue of nations which are preëminent in the world by force of character, enterprise, and wealth, and whose political and social institutions have a higher moral interest and greater promise than any which mankind has hitherto invented. To the original creations of English genius are to be added translations into English of all the masterpieces of other literatures, sacred and profane. It is a very rare scholar who has not learned much more about the Jews, the Greeks, or the Romans through English than through Hebrew, Greek, or Latin.

And now, with all this wonderful treasure within reach of our youth, what is the position of American schools and colleges in regard to teaching English? Has English literature the foremost place in the programs of schools? By no means; at best only a subordinate place, and in many schools no place at all. Does English take equal

rank with Greek or Latin in our colleges? By no means; not in the number and rank of the teachers, or in the consideration in which the subject is held by faculty and students, or in the time which may be devoted to it by a candidate for a degree. Until within a few years the American colleges made no demand upon candidates for admission in regard to knowledge of English; and now that some colleges make a small requirement in English, the chief result of the examinations is to demonstrate the woeful ignorance of their own language and literature which prevails among the picked youth of the country. Shall we be told, as usual, that the best way to learn English is to study Latin and Greek? The answer is that the facts do not corroborate this improbable hypothesis. American youth in large numbers study Latin and Greek, but do not thereby learn English. Moreover, this hypothesis is obviously inapplicable to the literatures. Shall we also be told, as usual, that no linguistic discipline can be got out of the study of the native language? How, then, was the Greek mind trained in language? Shall we be told that knowledge of English literature should be picked up without systematic effort? The answer is, first, that as a matter of fact this knowledge is not picked up by American youth; and, secondly, that there never was any good reason to suppose that it would be, the acquisition of a competent knowledge of English literature being not an easy but a laborious undertaking for an average youth — not a matter of

entertaining reading, but of serious study. Indeed, there is no subject in which competent guidance and systematic instruction are of greater value. For ten years past Harvard University has been trying, first, to stimulate the preparatory schools to give attention to English, and, secondly, to develop and improve its own instruction in that department; but its success has thus far been very moderate. So little attention is paid to English at the preparatory schools that half of the time, labor, and money which the University spends upon English must be devoted to the mere elements of the subject. Moreover, this very year at Harvard less than half as much instruction, of proper university grade, is offered in English as in Greek or in Latin. The experience of all other colleges and universities resembles in this respect that of Harvard.

This comparative neglect of the greatest of literatures in American schools and colleges is certainly a remarkable phenomenon. How is it to be explained? First, by the relative newness of this language and literature: it requires two or three hundred years to introduce new intellectual staples; secondly, by the real difficulty of teaching English well — a difficulty which has only of late years been overcome; and, thirdly, by the dazzling splendor of the revived Greek and Latin literatures when in the fourteenth and fifteenth centuries they broke upon the mind of western Europe. Through the force of custom, tradition, inherited tastes, and transmitted opinions, the educational practices of

to-day are still cast in the molds of the seventeenth century. The scholars of that time saw a great light which shone out of darkness, and they worshiped it; and we, their descendants in the ninth generation, upon whom greater lights have arisen, still worship at the same shrine. Let us continue to worship there; but let us pay at least equal honors to the glorious lights which have since been kindled.

The next subjects for which I claim a position of academic equality with Greek, Latin, and mathematics are French and German. This claim rests not on the usefulness of these languages to couriers, tourists, or commercial travelers, and not on their merit as languages, but on the magnitude and worth of the literatures, and on the unquestionable fact that facility in reading these languages is absolutely indispensable to a scholar, whatever may be his department of study. Until within one hundred or one hundred and fifty years, scholarship had a common language, the Latin; so that scholars of all the European nationalities had a perfect means of communication, whether in speaking, writing, or printing. But the cultivation of the spirit of nationality and the development of national literatures have brought about the abandonment of Latin as the common language of learning, and imposed on every student who would go beyond the elements of his subject the necessity of acquiring at least a reading knowledge of French and German, besides Latin. Indeed, the advanced student of our day

can dispense with Latin better than with French, German, or English; for, although the antiquated publications in any science may be printed in Latin, the recent (which will probably contain all that is best in the old) will be found printed in one of these modern languages. I cannot state too strongly the indispensableness of both French and German to the American or English student. Without these languages he will be much worse off in respect to communicating with his contemporaries than was the student of the seventeenth century who could read and speak Latin; for through Latin the student of the year 1684 could put himself into direct communication with all contemporary learning. So far as I know, there is no difference of opinion among American scholars as to the need of mastering these two languages in youth. The philologists, archæologists, metaphysicians, physicians, physicists, naturalists, chemists, economists, engineers, architects, artists, and musicians, all agree that a knowledge of these languages is indispensable to the intelligent pursuit of any one of their respective subjects beyond its elements. Every college professor who gives a thorough course of instruction — no matter in what department — finds himself obliged to refer his pupils to French and German authorities. In the reference library of any modern laboratory, whether of chemistry, physics, physiology, pathology, botany, or zoölogy, a large proportion of the books will be found to be in French or German. The working library of the philologist, ar-

chæologist, or historian teaches the same lesson. Without a knowledge of these two languages it is impossible to get at the experience of the world upon any modern industrial, social, or financial question, or to master any profession which depends upon applications of modern science. I urge no utilitarian argument, but rest the claims of French and German for admission to complete academic equality on the copiousness and merit of the literatures, and the indispensableness of the languages to all scholars.

Such being the reasons for teaching French and German to all young scholars at an early stage of their training, what is the condition of these languages at American schools and colleges? For answer to this question I will describe the condition of instruction in French and German at Yale College, an institution, I need not say, which holds a leading position among American colleges. No knowledge of either French or German is required for admission to Yale College, and no instruction is provided in either language before the beginning of the Junior year. In that year German must be and French may be studied, each four hours a week; in the Senior year either language may be studied four hours a week. In other words, Yale College does not suggest that the preparatory schools ought to teach either French or German, does not give its students the opportunity of acquiring these languages in season to use them in other studies, and does not offer them any adequate opportunity of becoming acquainted with

the literature of either language before they take the bachelor's degree. Could we have stronger evidence than this of the degraded condition of French and German in the mass of our schools and colleges? A few colleges have lately been demanding a small amount of French or German for admission, and a few schools have met this very moderate demand; but, as a general rule, American boys who go to college devote from two to three solid years to Greek and Latin, but study French and German scarcely at all while at school, and at college only for a part of the time during the later half of the course. The opportunities and facilities for studying Greek and Latin in our schools and colleges are none too great; but surely the opportunities and facilities for studying French and German are far too small. The modern languages should be put on an equality with the ancient.

The next subject which demands an entirely different position from that it now occupies in American schools and colleges is history. If any study is liberal and liberalizing, it is the modern study of history — the study of the passions, opinions, beliefs, arts, laws, and institutions of different races or communities, and of the joys, sufferings, conflicts, and achievements of mankind. Philology and polite literature arrogate the title of the "humanities"; but what study can so justly claim that honorable title as the study which deals with the actual experience on this earth of social and progressive man? What kind of knowledge can be so useful to a legislator, administrator,

journalist, publicist, philanthropist, or philosopher as a well-ordered knowledge of history? If the humanity or liberality of a study depends upon its power to enlarge the intellectual and moral interests of the student, quicken his sympathies, impel him to the side of truth and virtue, and make him loathe falsehood and vice, no study can be more humane or liberal than history. These being the just claims of history in general, the history of the community and nation to which we belong has a still more pressing claim upon our attention. That study shows the young the springs of public honor and dishonor; sets before them the national failings, weaknesses, and sins; warns them against future dangers by exhibiting the losses and sufferings of the past; enshrines in their hearts the national heroes; and strengthens in them the precious love of country. One would naturally suppose that the history of the United States and England, at least, would hold an important place in the programs of American schools and colleges, and that no subject would occupy a more dignified position in the best colleges and universities than history in respect to the number and rank of its teachers. The facts do not accord with this natural supposition. The great majority of American colleges (there are nearly four hundred of them) make no requirements in history for admission, and have no teacher of history whatever. Lest it be imagined that this can be true only of inferior colleges, I will mention that in so old and well-established a college as Dartmouth there is no teacher of history,

whether professor, tutor, or temporary instructor; while in so excellent an institution as Princeton there is only one professor of history against three of Greek, and this single professor includes political science with history in his teaching. No institution which calls itself a college expects to do without a professor of Greek, or of Latin, or of mathematics; but nearly all of them do without a teacher of history. The example of the colleges governs the preparatory schools. When young men who are interested in historical study ask me if it would be advisable for them to fit themselves to teach history for a livelihood, I am obliged to say that it would be the height of imprudence on their part, there being only an infinitesimal demand for competent teachers of history in our whole country. This humiliated condition of history is only made the more conspicuous by the old practice, which still obtains at some colleges (Harvard College, for instance), of demanding from all candidates for admission a small amount of Greek and Roman history—as much as a clever boy could commit to memory in three or four days. One hardly knows which most to wonder at in this requirement, the selection of topic or the minuteness of the amount. Is it not plain that the great subject of history holds no proper place in American education?

Closely allied to the study of history is the study of the new science called political economy, or public economics. I say the new science, because Smith's "Wealth of Nations" was not published

until 1776; Malthus's "Essay on the Principle of Population" appeared only in 1798; and Ricardo's "Political Economy and Taxation," in 1817. The subject is related to history, inasmuch as it gleans its most important facts by the study of the institutions and industrial and social conditions of the past; it is the science of wealth in so far as it deals with the methods by which private or national wealth is accumulated, protected, enjoyed, and distributed; and it is connected with ethics in that it deals with social theories and the moral effects of economic conditions. In some of its aspects it were better called the science of the health of nations; for its results show how nations might happily grow and live in conformity with physical and moral laws. It is by far the most complex and difficult of the sciences of which modern education has to take account, and therefore should not be introduced too early into the course of study for the degree of Bachelor of Arts; but when it is introduced, enough of it should be offered to the student to enable him to get more than a smattering.

When we consider how formidable are the industrial, social, and political problems with which the next generations must grapple,—when we observe how inequalities of condition increase, notwithstanding the general acceptance of theories of equality; how population irresistibly tends to huge agglomerations, in spite of demonstrations that such agglomerations are physically and morally unhealthy; how the universal thirst for the enjoyments of life grows hotter and hotter, and is

not assuaged; how the relations of government to society become constantly more and more complicated, while the governing capacity of men does not seem to increase proportionally; and how free institutions commit to masses of men the determination of public policy in regard to economic problems of immense difficulty, such as the problems concerning tariffs, banking, currency, the domestic carrying trade, foreign commerce, and the incidence of taxes,—we can hardly fail to appreciate the importance of offering to large numbers of American students ample facilities for learning all that is known of economic science.

How does the ordinary provision made in our colleges for the study of political economy meet this need of students and of the community? That I may not understate this provision, I will describe the provisions made at Columbia College, an institution which is said to be the richest of our colleges, and at Brown University, one of the most substantial of the New England colleges. At Columbia, Juniors must attend two exercises a week in political economy for half the year, and Seniors may elect that subject for two hours a week throughout the year. At Brown, Juniors may elect political economy two hours a week for half the year, and Seniors have a like privilege. The provision of instruction in Greek at Brown is five and a half times as much as the provision in political economy, and seven elevenths of the Greek is required of all students, besides the Greek which was required at school; but none of the

political economy is required. Columbia College makes a further provision of instruction in history, law, and political science for students who are able to devote either one or two years to these subjects after taking the degree of Bachelor of Arts, or who are willing to procure one year's instruction in these subjects by accepting the degree of Bachelor of Philosophy instead of the degree of Bachelor of Arts — a very high price to pay for this one year's privilege. If this is the state of things in two leading Eastern colleges with regard to instruction in political economy, what should we find to be the average provision in American colleges? We should find it poor in quality and insignificant in amount. In view of this comparative neglect of a subject all-important to our own generation and to those which are to follow, one is tempted to join in the impatient cry, Are our young men being educated for the work of the twentieth century or of the seventeenth? There can be no pretense that political economy is an easy subject, or that it affords no mental discipline. Indeed, it requires such exactness of statement, such accurate weighing of premises, and such closeness of reasoning, that many young men of twenty, who have been disciplined by the study of Greek, Latin, and mathematics for six or eight years, find that it tasks their utmost powers. Neither can it be justly called a material or utilitarian subject; for it is full of grave moral problems, and deals with many questions of public honor and duty.

The last subject for which I claim admission to

the magic circle of the liberal arts is natural science. All the subjects which the sixteenth century decided were liberal, and all the subjects which I have heretofore discussed, are studied in books; but natural science is to be studied not in books but in things. The student of languages, letters, philosophy, mathematics, history, or political economy, reads books, or listens to the words of his teacher. The student of natural science scrutinizes, touches, weighs, measures, analyzes, dissects, and watches things. By these exercises his powers of observation and judgment are trained, and he acquires the precious habit of observing the appearances, transformations, and processes of nature. Like the hunter and the artist, he has open eyes and an educated judgment in seeing. He is at home in some large tract of nature's domain. Finally, he acquires the scientific method of study in the field, where that method was originally perfected. In our day, the spirit in which a true scholar will study Indian arrow-heads, cuneiform inscriptions, or reptile tracks in sandstone, is one and the same, although these objects belong respectively to three separate sciences — archæology, philology, and paleontology. But what is this spirit? It is the patient, cautious, sincere, self-directing spirit of natural science. One of the best of living classical scholars, Professor Jebb of Glasgow, states this fact in the following forcible words: "The diffusion of that which is specially named science has at the same time spread abroad the only spirit in which any kind of knowledge can be

prosecuted to a result of lasting intellectual value." Again, the arts built upon chemistry, physics, botany, zoölogy, and geology are chief factors in the civilization of our time, and are growing in material and moral influence at a marvelous rate. Since the beginning of this century, they have wrought wonderful changes in the physical relation of man to the earth which he inhabits, in national demarcations, in industrial organization, in governmental functions, and in the modes of domestic life; and they will certainly do as much for the twentieth century as they have done for ours. They are not simply mechanical or material forces; they are also moral forces of great intensity. I maintain that the young science which has already given to all sciences a new and better spirit and method, and to civilization new powers and resources of infinite range, deserves to be admitted with all possible honors to the circle of the liberal arts; and that a study fitted to train noble faculties, which are not trained by the studies now chiefly pursued in youth, ought to be admitted on terms of perfect equality to the academic curriculum.

The wise men of the fifteenth century took the best intellectual and moral materials existing in their day,— namely, the classical literatures, metaphysics, mathematics, and systematic theology,— and made of them the substance of the education which they called liberal. When we take the best intellectual and moral materials of their day and of ours to make up the list of subjects worthy to

rank as liberal, and to be studied for discipline, ought we to omit that natural science which in its outcome supplies some of the most important forces of modern civilization? We do omit it. I do not know a single preparatory school in this country in which natural science has an adequate place, or any approach to an adequate place, although some beginnings have lately been made. There is very little profit in studying natural science in a book, as if it were grammar or history; for nothing of the peculiar discipline which the proper study of science supplies can be obtained in that way, although some information on scientific subjects may be so acquired. In most colleges a little scientific information is offered to the student through lectures and the use of manuals, but no scientific training. The science is rarely introduced as early as the Sophomore year; generally it begins only with the Junior year, by which time the mind of the student has become so set in the habits which the study of languages and mathematics engenders, that he finds great difficulty in grasping the scientific method. It seems to him absurd to perform experiments or make dissections. Can he not read in a book, or see in a picture, what the results will be? The only way to prevent this disproportionate development of the young mind on the side of linguistic and abstract reasoning is to introduce into school courses of study a fair amount of training in sciences of observation. Over against four languages, the elements of mathematics, and the elements of history,

there must be set some accurate study of things. Were other argument needed, I should find it in the great addition to the enjoyment of life which results from an early acquaintance and constant intimacy with the wonders and beauties of external nature. For boy and man this intimacy is a source of ever-fresh delight.

To the list of studies which the sixteenth century called liberal, I would therefore add, as studies of equal rank, English, French, German, history, political economy, and natural science, not one of which can be said to have existed in mature form when the definition of liberal education which is still in force was laid down. In a large university many other languages and sciences will be objects of study; I confine myself here to those studies which, in my judgment, are most desirable in an ordinary college. We are now in position to consider how the necessity for allowing choice among studies has arisen.

The second and third of the three principal propositions which I wish to demonstrate — namely, that earlier choice should be allowed among coordinate studies, and that the existing order of studies needs to be modified — may be treated much more briefly than the first proposition, although in them lies the practical application of the whole discussion. When the men of the sixteenth century had taken all the sciences known to their generation to make up their curriculum of liberal study, the sum was not so large as to make it impossible for a student to cover the whole ground

effectually. But if the list of liberal arts is extended, as I have urged, it is manifest that no man can cover the whole ground and get a thorough knowledge of any subject. Hence the necessity of allowing the student to choose among many coördinate studies the few to which he will devote himself. In a vain endeavor to introduce at least some notions about the new sciences into the curriculum of the year 1600, the managers of American colleges have made it impossible for the student to get a thorough knowledge of any subject whatever. The student has a better chance to learn Greek and Latin than anything else; but he does not get instruction enough in these languages to enable him to master them. In no other subject can he possibly get beyond the elements, if he keep within the official schedules of studies. Consider what sort of an idea of metaphysics can be obtained from a single text-book of moderate size, into which the whole vast subject has been filtered through one preoccupied mind; or of physics from a short course of lectures and a little manual of three or four hundred pages prepared by a teacher who is not himself an investigator; or of political economy from a single short treatise by an author not of the first rank. These are not imaginary sketches; they are described from the life. Such are the modes of dealing with these sciences which prevail in the great majority of American colleges. I need not dwell upon this great evil, which is doing untold injury every year. The remedies are plain. First, let the new studies be put in every

respect on a level with the old; and then let such a choice among coördinate studies be given as to secure to the student a chance to be thorough in something. To be effective, option must be permitted earlier than it is now. This proposition — that earlier options are desirable — cannot be discussed without simultaneously considering the order of studies at school and college.

Boyhood is the best time to learn new languages; so that as many as possible of the four languages, French, German, Latin, and Greek, ought to be begun at school. But if all boys who are to receive a liberal education are required to learn to read all four languages before they go to college, those boys who are not quick at languages will have very little time for other studies. English, the elements of mathematics, the elements of some natural science properly taught, and the history of England and the United States being assumed as fundamentals, it is evident that some choice among the four remaining languages must be allowed, in order not to restrict unduly the number of boys who go to college. With very good instruction, many boys could doubtless learn to read all four languages tolerably well before they were eighteen years old without sacrificing more essential things; but there are boys of excellent capacity in other subjects who could not accomplish this linguistic task; and in many States of the Union it is quite impossible to get very good instruction in all these languages. Therefore I believe that an option should be allowed among these four languages at

college admission examinations, any three being accepted, and the choice being determined in each case by the wishes of parents, the advice of teachers, the destination of the candidate if settled, the better quality of accessible instruction in one language than in another, or the convenience of the school which the candidate attends. Whichever language the candidate did not offer at admission he should have opportunity to begin and pursue at college.

As to the best order in which to take up these four languages, I notice that most persons who have thought of the matter hold some theory about it with more or less confidence; but that the English-speaking peoples have little or no experience upon the subject. One would naturally suppose that easiest first, hardest last, would be a good rule; but such is not the present practice in this country. On the contrary, Latin is often begun before French; and it is common to begin Greek at fourteen and German at twenty. In education, as in other things, I am a firm believer in the principle of expending the least force which will accomplish the object in view. If a language is to be learned, I would teach it in the easiest known method, and at the age when it can be easiest learned. But there is another theory which is often acted upon, though seldom explicitly stated — the theory that, for the sake of discipline, hardness that is avoidable should be deliberately imposed upon boys; as, for instance, by forcing a boy to study many languages who has no gifts

that way and can never attain to any mastery of them. To my mind the only justification of any kind of discipline, training, or drill is attainment of the appropriate end of that discipline. It is a waste for society, and an outrage upon the individual, to make a boy spend the years when he is most teachable in a discipline the end of which he can never reach, when he might have spent them in a different discipline, which would have been rewarded by achievement. Herein lies the fundamental reason for options among school as well as college studies, all of which are liberal. A mental discipline which takes no account of differences of capacity and taste is not well directed. It follows that there must be variety in education instead of uniform prescription. To ignorant or thoughtless people it seems that the wisdom and experience of the world ought to have produced by this time a uniform course of instruction good for all boys, and made up of studies permanently preëminent; but there are two strong reasons for believing that this convenient result is unattainable: in the first place, the uniform boy is lacking; and, in the second place, it is altogether probable that the educational value of any established study, far from being permanently fixed, is constantly changing as new knowledge accumulates and new sciences come into being. Doubtless the eleventh century thought it had a permanent curriculum in "*Lingua*, *tropus*, *ratio*, *numerus*, *tonus*, *angulus*, *astra*"; doubtless the course of study which Erasmus followed was held by the teachers of that day to supply the only

sufficient liberal education; and we all know that since the year 1600, or thereabouts, it has been held by the wisest and most cultivated men that Greek, Latin, and mathematics are the only good disciplinary studies. Whewell, whose foible was omniscience, did not hesitate to apply to these three studies the word "permanent." But if history proves that the staples of education have in fact changed, reason says still more clearly that they must change. It would be indeed incredible that organized education should not take account of the progress of knowledge. We may be sure that the controlling intellectual forces of the actual world, century by century, penetrate educational processes, and that languages, literatures, philosophies, or sciences which show themselves fruitful and powerful must win recognition as liberal arts and proper means of mental discipline.

Two objections to the views which I have been presenting occur at once to every conservative mind. I have often been met with the question: Is this traditional degree of Bachelor of Arts, which for three hundred years, at least, has had a tolerably clear meaning, to be deprived of all exact significance, so that it will be impossible to tell what one who holds the degree has studied? I reply that the degree will continue to testify to the main fact to which it now bears witness, namely, that the recipient has spent eight or ten years, somewhere between the ages of twelve and twenty-three, in liberal studies. I might add that the most significant and valuable degree in arts which

is anywhere given — the German degree of Doctor of Philosophy and Master of Arts — does not stand for any particular studies, and does not indicate in any individual case the special studies for which it was conferred, although it does presuppose the earlier accomplishment, at a distance of several years, of the curriculum of a German gymnasium.

A second objection is expressed in the significant question: What will become of Greek and Latin if all these new subjects are put on an equality with them? Will Greek and Latin, and the culture which they represent, survive the invasion? To this question I answer, first, that it is proposed, not to substitute new subjects for the old, but only to put new subjects beside the old in a fair competition, and not to close any existing road to the degree of Bachelor of Arts, but only to open new ones; secondly, that the proposed modification of the present prescription of Greek and Latin for all boys who are to go to college will rid the Greek and Latin classes of unwilling and incapable pupils, to the great advantage of the pupils who remain; and, thirdly, that the withdrawal of the artificial protection now given to the Classics will cause the study of classical antiquity to rely — to use the well-chosen words of Professor Jebb on the last page of his life of Bentley — "no longer upon a narrow or exclusive prescription, but upon a reasonable perception of its proper place amongst the studies which belong to a liberal education." The higher the value which one sets on Greek and Latin as means of culture, the firmer

must be his belief in the permanence of those studies when they cease to be artificially protected. In education, as elsewhere, it is the fittest that survives. The Classics, like other studies, must stand upon their own merits; for it is not the proper business of universities to force subjects of study, or particular kinds of mental discipline, upon unwilling generations; and they cannot prudently undertake that function, especially in a country where they have no support from an established church, or from an aristocratic organization of society, and where it would be so easy for the generations, if repelled, to pass the universities by.

Finally, the enlargement of the circle of liberal arts may justly be urged on the ground that the interests of the higher education and of the institutions which supply that education demand it. Liberal education is not safe and strong in a country in which the great majority of the men who belong to the intellectual professions are not liberally educated. Now, that is just the case in this country. The great majority of the men who are engaged in the practice of law and medicine, in journalism, the public service, and the scientific professions, and in industrial leadership, are not Bachelors of Arts. Indeed, the only learned profession which contains to-day a large proportion of Bachelors of Arts is the ministry. This sorry condition of things is doubtless due in part to what may be called the pioneer condition of American society; but I think it is also due to the anti-

quated state of the common college curriculum, and of the course of preparatory study at school. When institutions of learning cut themselves off from the sympathy and support of large numbers of men whose lives are intellectual, by refusing to recognize as liberal arts and disciplinary studies languages, literatures, and sciences which seem to these men as important as any which the institutions cultivate, they inflict a gratuitous injury both on themselves and on the country which they should serve. Their refusal to listen to parents and teachers who ask that the avenues of approach to them may be increased in number, the new roads rising to the same grade or level as the old, would be an indication that a gulf already yawned between them and large bodies of men who by force of character, intelligence, and practical training are very influential in the modern world. For twenty years past signs have not been wanting that the American college was not keeping pace with the growth of the country in population and wealth. I believe that a chief cause of this relative decline is the narrowness of the course of study in both school and college.

The execution of the principles which I have advocated would involve considerable changes in the order of school and college studies. Thus, science-teaching should begin early in the school course; English should be studied from the beginning of school life to the end of college life; and the order in which the other languages are taken up should be for many boys essentially

changed. We should in vain expect such changes to be made suddenly. They must be gradually brought about by the pressure of public opinion — by the public opinion of the educated classes taking gradual effect through established educational instrumentalities. The change will be wrought by the demands of parents upon private schools; by the influence of trustees and committees in charge of endowed and public schools upon school courses of study; by the conditions which benefactors and founders impose upon their gifts and bequests to liberal education; by the competition of industrial and technological schools; and by the gradual encroachment of the modern subjects upon the ancient in colleges and universities. All these influences are at work, and much ground has been gained during the last fifteen years.

LIBERTY IN EDUCATION

Before the Nineteenth Century Club of New York, in 1885

LIBERTY IN EDUCATION

HOW to transform a college with one uniform curriculum into a university without any prescribed course of study at all is a problem which more and more claims the attention of all thoughtful friends of American learning and education. To-night I hope to convince you that a university of liberal arts and sciences must give its students three things:

I. Freedom in choice of studies.

II. Opportunity to win academic distinction in single subjects or special lines of study.

III. A discipline which distinctly imposes on each individual the responsibility of forming his own habits and guiding his own conduct.

These three subjects I shall take up in succession, the first of them taking the greater part of the time allotted me.

I. Of freedom in choice of studies.

Let me first present what I may call a mechanical argument on this subject. A college with a prescribed curriculum must provide, say, sixteen hours a week of instruction for each class, or sixty-

four hours a week in all for the four classes, without allowing for repetitions of lectures or lessons. Six or eight teachers can easily give all the instruction needed in such a college, if no repetitions are necessary. If the classes are so large that they need to be divided into two or more sections, more teachers must be employed. If a few extra or optional studies, outside of the curriculum, are provided, a further addition to the number of teachers must be made. Twenty teachers would, however, be a liberal allowance for any college of this type; and accordingly there are hundreds of American colleges at this moment with less than twenty teachers all told. Under the prescribed system it would be impossible for such a college to find work for more teachers, if it had them. Now there are eighty teachers employed this year in Harvard College, exclusive of laboratory assistants; and these eighty teachers give about four hundred and twenty-five hours of public instruction a week without any repetitions, not counting the very important instruction which many of them give in laboratories. It is impossible for any undergraduate in his four years to take more than a tenth part of the instruction given by the College; and since four fifths of this instruction is of a higher grade than any which can be given in a college with a prescribed curriculum, a diligent student would need about forty years to cover the present field; and during those years the field would enlarge quite beyond his powers of occupation. Since the student cannot take the whole of the

instruction offered, it seems to be necessary to allow him to take a part. A college must either limit closely its teaching, or provide some mode of selecting studies for the individual student. The limitation of teaching is an intolerable alternative for any institution which aspires to become a university; for a university must try to teach every subject, above the grade of its admission requirements, for which there is any demand; and to teach it thoroughly enough to carry the advanced student to the confines of present knowledge, and make him capable of original research. These are the only limits which a university can properly set to its instruction — except indeed those rigorous limits which poverty imposes. The other alternative is selection or election of studies.

The elective system at Harvard has been sixty years in developing, and during fourteen of these years — from 1846 to 1860 — the presidents and the majority of the faculty were not in favor of it; but they could find no way of escape from the dilemma which I have set before you. They could not deliberately reduce the amount of instruction offered, and election of studies in some degree was the inevitable alternative.

The practical question then is, At what age, and at what stage of his educational progress, can an American boy be offered free choice of studies? or, in other words, At what age can an American boy best go to a free university? Before answering this question I will ask your attention to four preliminary observations.

1. The European boy goes to free universities at various ages from seventeen to twenty; and the American boy is decidedly more mature and more capable of taking care of himself than the European boy of like age.

2. The change from school to university ought to be made as soon as it would be better for the youth to associate with older students under a discipline suited to their age, than with younger pupils under a discipline suited to theirs — as soon, in short, as it would be better for the youth to be the youngest student in a university than the oldest boy in a school. The school might still do much for the youth; the university may as yet be somewhat too free for him: there must be a balancing of advantages against disadvantages; but the wise decision is to withdraw him betimes from a discipline which he is outgrowing, and put him under a discipline which he is to grow up to. When we think of putting a boy into college, our imaginations are apt to dwell upon the occasional and exceptional evil influences to which his new freedom will expose him, more than upon those habitual and prevailing influences of college companionship which will nourish his manliness and develop his virtue; just as we are apt to think of heredity chiefly as a means of transmitting vices and diseases, whereas it is normally the means of transmitting and accumulating infinitely various virtues and serviceable capacities.

3. A young man is much affected by the expectations which his elders entertain of him. If they

expect him to behave like a child, his lingering childishness will oftener rule his actions; if they expect him to behave like a man, his incipient manhood will oftener assert itself. The pretended parental or sham monastic régime of the common American college seems to me to bring out the childishness rather than the manliness of the average student; as is evidenced by the pranks he plays, the secret societies in which he rejoices, and the barbarous or silly customs which he accepts and transmits. The conservative argument is: a college must deal with the student as he is; he will be what he has been, namely, a thoughtless, aimless, lazy, and possibly vicious boy; therefore a policy which gives him liberty is impracticable. The progressive argument is: adapt college policy to the best students, and not to the worst; improve the policy, and in time the evil fruits of a mistaken policy will disappear. I would only urge at this point that a far-seeing educational policy must be based upon potentialities as well as actualities, upon things which may be reasonably hoped for, planned, and aimed at, as well as upon things which are.

4. The condition of secondary education is an important factor in our problem. It is desirable that the young men who are to enjoy university freedom should have already received at school a substantial training, in which the four great subdivisions of elementary knowledge — languages, history, mathematics, and natural science — were all adequately represented; but it must be ad-

mitted that this desirable training is now given in very few schools, and that in many parts of the country there are not secondary schools enough of even tolerable quality. For this condition of secondary education the colleges are in part responsible; for they have produced few good teachers, except for the ancient languages; and they have required for admission to college hardly anything but the elements of Greek, Latin, and mathematics. But how should this condition of things affect the policy of an institution which sees its way to obtain a reasonable number of tolerably prepared students? Shall we stop trying to create a university because the condition of secondary education in the country at large is unsatisfactory? The difficulty with that policy of inaction is that the reform and development of secondary education depend upon the right organization and conduct of universities. It is the old problem: Which was first created, an egg or a hen? In considering the relation of college life to school life, many people are confused by a misleading metaphor — that of building. They say to themselves: on weak foundations no strong superstructure can be built; schools lay the foundations on which the university must build; therefore, if preparatory schools fail to do good work, no proper university work can subsequently be done. The analogy seems perfect, but has this fatal defect: education is a vital process, not a mechanical one. Let us, therefore, use an illustration drawn from a vital function, that of nutrition. A child has had poor milk

as an infant, and is not well developed; therefore, when its teeth are cut, and it is ready for bread, meat, and oatmeal, you are to hold back this substantial diet, and give it the sweetened milk and water, and Mellin's Food, which would have suited it when a baby. The mental food of a boy has not been as nourishing and abundant as it should have been at school; therefore when he goes to college or university his diet must be that which he should have had at school, but missed. Education involves growth or development from within in every part; and metaphors drawn from the process of laying one stone upon another are not useful in educational discussions. Harvard College now finds itself able to get nearly three hundred tolerably prepared students every year from one hundred or more schools and private tutors scattered over the country; and she is only just beginning to reap the fruit of the changes in her own policy and discipline which the past eighteen years have wrought. Schools follow universities, and will be what universities make them.

With these preliminary suggestions I proceed to answer the question, At what age can an American boy best go to a university where choice of studies is free? and to defend my answer. I believe the normal age under reasonably favorable conditions to be eighteen. In the first place, I hold that the temperament, physical constitution, mental aptitudes, and moral quality of a boy are all well determined by the time he is eighteen years old. The potential man is already revealed. His

capacities and incapacities will be perfectly visible to his teacher, or to any observant and intimate friend, provided that his studies at school have been fairly representative. If his historical studies have been limited to primers of Greek, Roman, and American history, his taste and capacity for historical study will not be known either to his teacher or to himself; if he has had no opportunity to study natural science, his powers in that direction will be quite unproved; but if the school course has been reasonably comprehensive, there need be no doubt as to the most profitable direction of his subsequent studies. The boy's future will depend greatly upon the influences, happy or unhappy, to which he is subjected; but given all favorable influences, his possibilities are essentially determined. The most fortunate intellectual influences will be within his reach, if he has liberty to choose the mental food which he can best assimilate. Secondly, at eighteen the American boy has passed the age when a compulsory external discipline is useful. Motives and inducements may be set vividly before him; he may be told that he must do so and so in order to win something which he desires or values; prizes and rewards near or remote may be held out to him; but he cannot be driven to any useful exercise of his mind. *Thirdly*, a well-instructed youth of eighteen can select for himself — not for any other boy, or for the fictitious universal boy, but for himself alone — a better course of study than any college faculty, or any wise man who does not know him and his

ancestors and his previous life, can possibly select for him. In choosing his course he will naturally seek aid from teachers and friends who have intimate knowledge of him, and he will act under the dominion of that intense conservatism which fortunately actuates civilized man in the whole matter of education, and under various other safeguards which nature and not arbitrary regulation provides. When a young man whom I never saw before asks me what studies he had better take in college, I am quite helpless, until he tells me what he likes and what he dislikes to study, what kinds of exertion are pleasurable to him, what sports he cares for, what reading interests him, what his parents and grandparents were in the world, and what he means to be. In short, I can only show him how to think out the problem for himself with such lights as he has and nobody else can have. The proposition that a boy of eighteen can choose his own studies, with the natural helps, more satisfactorily than anybody else can choose them for him, seems at first sight absurd; but I believe it to be founded upon the nature of things, and it is also for me a clear result of observation. I will state first the argument from the nature of things, and then describe my own observations.

Every youth of eighteen is an infinitely complex organization, the duplicate of which neither does nor ever will exist. His inherited traits are different from those of every other human being; his environment has been different from that of every other child; his passions, emotions, hopes, and de-

sires were never before associated in any other creature just as they are in him; and his will-force is aroused, stimulated, exerted, and exhausted in ways wholly his own. The infinite variety of form and feature, which we know human bodies to be capable of, presents but a faint image of the vastly deeper diversities of the minds and characters which are lodged in these unlike shells. To discern and take due account of these diversities no human insight or wisdom is sufficient, unless the spontaneous inclinations, natural preferences, and easiest habitual activities of each individual are given play. It is for the happiness of the individual and the benefit of society alike that these mental diversities should be cultivated, not suppressed. The individual enjoys most that intellectual labor for which he is most fit; and society is best served when every man's peculiar skill, faculty, or aptitude is developed and utilized to the highest possible degree. The presumption is, therefore, against uniformity in education, and in favor of diversity at the earliest possible moment. What determines that moment? To my thinking, the limit of compulsory uniform instruction should be determined by the elementary quality and recognized universal utility of the subjects of such instruction. For instance, it is unquestionable that every child needs to know how to read, write, and, to a moderate extent, cipher. Therefore primary schools may have a uniform programme. One might naturally suppose that careful study of the mother-tongue and its literature would be consid-

ered a uniform need for all youth; but as a matter of fact there is no agreement to this effect. The English language and literature have hardly yet won a place for themselves in American schools. Only the elements of two foreign languages and the elements of algebra and geometry can be said to be generally recognized as indispensable to the proper training of all young people who are privileged to study beyond their seventeenth year. There is no consent as to the uniform desirableness of the elements of natural science, and there is much difference of opinion about the selection of the two foreign languages, the majority of educated people supposing two dead languages to be preferable, a minority thinking that living languages are permissible. The limit of that elementary knowledge, of which by common consent all persons who are to be highly educated stand in need, is therefore a narrow one, easily to be reached and passed, under respectable instruction, by any youth of fair ability before he is eighteen years old. There, at least, ceases justifiable uniformity in education. There, at least, election of studies should begin; and the safest guides to a wise choice will be the taste, inclination, and special capacity of each individual. When it comes to the choice of a profession, everybody knows that the only wisdom is to follow inclination. In my view, the only wisdom in determining those liberal studies which may be most profitably pursued after eighteen is to follow inclination. Hence it is only the individual youth who can select that course of study

which will most profit him, because it will most interest him. The very fact of choice goes far to secure the coöperation of his will.

I have already intimated that there exist certain natural guides and safeguards for every youth who is called upon in a free university to choose his own studies. Let us see what these natural aids are. In the first place, he cannot help taking up a subject which he has already studied about where he left it off, and every new subject at the beginning and not at the middle. Secondly, many subjects taught at a university involve other subjects, which must therefore be studied first. Thus, no one can get far in physics without being familiar with trigonometry and analytic geometry; chemical analysis presupposes acquaintance with general chemistry, and paleontology acquaintance with botany and zoölogy; no one can study German philosophy to advantage unless he can read German, and no student can profitably discuss practical economic problems until he has mastered the elementary principles of political economy. Every advanced course, whether in language, philosophy, history, mathematics, or science, presupposes acquaintance with some elementary course or courses. Thirdly, there is a prevailing tendency on the part of every competent student to carry far any congenial subject once entered upon. To repress this most fortunate tendency is to make real scholarship impossible. So effective are these natural safeguards against fickleness and

inconsecutiveness in the choice of studies, that artificial regulation is superfluous.

I give, in the next place, some results of my own observation upon the working of an elective system; and that you may have my credentials before you I will describe briefly my opportunities of observation. I had experience as an undergraduate of a college course almost wholly required; for I happened upon nearly the lowest stage to which the elective system in Harvard College ever fell, after its initiation in 1825. During the nine years from 1854 to 1863 I became intimately acquainted with the working of this mainly prescribed curriculum from the point of view of a tutor and assistant professor who had a liking for administrative details. After a separation from the University of six years, two of which were spent in Europe as a student and four at the Massachusetts Institute of Technology as a professor, I went back as president in 1869, to find a tolerably broad elective system already under way. The wishes of the governing boards and external circumstances all favoring it, the system was rapidly developed. Required studies were gradually abolished or pushed back; so that first the Senior year was made completely elective, then the Junior, then the Sophomore, and finally in June last the Freshman year was made chiefly elective. No required studies now remain except the writing of English, the elements of either French or German (one of these two languages being required for admission), and a few

lectures on chemistry and physics. None of the former exclusive staples, Greek, Latin, mathematics, logic, and metaphysics, are required, and no particular combinations or selections of courses are recommended by the faculty. I have therefore had ample opportunity to observe at Harvard the working of almost complete prescription, of almost complete freedom, and of all intermediate methods. In Europe I studied the free university method; and at the Institute of Technology I saw the system — excellent for technical schools — of several well-defined courses branching from a common stock of uniformly prescribed studies.

The briefest form in which I can express the general result of my observation is this: I have never known a student of any capacity to select for himself a set of studies covering four years which did not apparently possess more theoretical and practical merit for his case than the required curriculum of my college days. Every prescribed curriculum is necessarily elementary from beginning to end, and very heterogeneous. Such is the press of subjects that no one subject can possibly be carried beyond its elements; no teacher, however learned and enthusiastic, can have any advanced pupils; and no scholar, however competent and eager, can make serious attainments in any single subject. Under an elective system the great majority of students use their liberty to pursue some subject or subjects with a reasonable degree of thoroughness. This concentration upon single lines develops advanced teaching, and results in a

general raising of the level of instruction. Students who have decided taste for any particular subject wisely devote a large part of their time to that subject and its congeners. Those who have already decided upon their profession wisely choose subjects which are related to, or underlie, their future professional studies; thus, the future physician will advantageously give a large share of his college course to French, German, chemistry, physics, and biology; while the future lawyer will study logic, ethics, history, political economy, and the use of English in argumentative writing and speaking. Among the thousands of individual college courses determined by the choice of the student in four successive years, which the records of Harvard College now preserve, it is rare to find one which does not exhibit an intelligible sequence of studies. It should be understood in this connection that all the studies which are allowed to count toward the A. B. at Harvard are liberal or pure, no technical or professional studies being admissible.

Having said thus much about the way in which an American student will use freedom in the choice of studies, I desire to point out that a young American must enjoy the privileges of university life between eighteen and twenty-two, if at all. From two thirds to three fourths of college graduates go into professions or employments which require of them elaborate special preparation. The medical student needs four years of professional training, the law student at least three, the good

teacher and the skilful architect quite as much. Those who enter the service of business corporations, or go into business for themselves, have the business to learn — a process which ordinarily takes several years. If a young man takes his A. B. at twenty-two, he can hardly hope to begin the practice of his profession before he is twenty-six. That is quite late enough. It is clearly impossible, therefore, that the American university should be constructed on top of the old-fashioned American college. The average Freshman at Harvard is eighteen and two thirds years old when he enters, and at the majority of colleges he is older still. For the next three or four years he must have freedom to choose among liberal studies, if he is ever to enjoy that inestimable privilege.

Two common objections to an elective system shall next have our attention. The first is often put in the form of a query. Election of studies may be all very well for conscientious or ambitious students, or for those who have a strong taste for certain studies; but what becomes, under such a system, of the careless, indifferent, lazy boys who have no bent or intellectual ambition of any sort? I answer with a similar query: What became of such boys under the uniform compulsory system? Did they get any profit to speak of under that régime? Not within my observation. It really does not make much difference what these unawakened minds dawdle with. There is, however, much more chance that such young men will get roused from their lethargy under an elective

system than under a required. When they follow such faint promptings of desire as they feel, they at least escape the sense of grievance and repugnance which an arbitrary assignment to certain teachers and certain studies often creates. An elective system does not mean liberty to do nothing. The most indifferent student must pass a certain number of examinations every year. He selects perhaps those subjects in which he thinks he can pass the best examinations with the smallest amount of labor; but in those very subjects the instruction will be on a higher plane than it can ever reach under a compulsory system, and he will get more benefit from them than he would from other subjects upon which he put the same amount of labor but attained less success. It is an important principle in education, from primary school to university, that the greater the visible attainment for a given amount of labor the better; and this rule applies quite as forcibly to a weak student as to a strong one. Feeble or inert students are considerably influenced in choosing their studies by the supposed quality of the teachers whom they will meet. As a rule they select the very teachers who are likely to have the most influence with them, being guided by traditions received from older students of their sort. It is the unanimous opinion of the teachers at Cambridge that more and better work is got from this class of students under the elective system than was under the required.

Having said thus much about the effects of free

choice of studies upon the unpromising student, I must add that the policy of an institution of education, of whatever grade, ought never to be determined by the needs of the least capable students; and that a university should aim at meeting the wants of the best students at any rate, and the wants of inferior students only so far as it can meet them without impairing the privileges of the best. A uniform curriculum, by enacting superficiality and prohibiting thoroughness, distinctly sacrifices the best scholars to the average. Free choice of studies gives the young genius the fullest scope without impairing the chances of the drone and the dullard.

The second objection with which I wish to deal is this: free choice implies that there are no studies which are recognized as of supreme merit, so that every young man unquestionably ought to pursue them. Can this be? Is it possible that the accumulated wisdom of the race cannot prescribe with certainty the studies which will best develop the human mind in general between the ages of eighteen and twenty-two? At first it certainly seems strange that we have to answer no; but when we reflect how very brief the acquaintance of the race has been with the great majority of the subjects which are now taught in a university the negative answer seems less surprising. Out of the two hundred courses of instruction which stand on the list of Harvard University this year it would be difficult to select twenty which could have been given at the beginning of this century with the illustrations,

materials, and methods now considered essential to the educational quality of the courses. One realizes more easily this absence of accumulated experience on considering that all the natural sciences, with comparative philology, political economy, and history, are practically new subjects, that all mathematics is new except the elements of arithmetic, algebra, and geometry, that the recent additions to ethics and metaphysics are of vast extent, and that the literatures of the eighteenth and nineteenth centuries have great importance in several European languages. The materials and methods of university education always have been, and always will be, changing from generation to generation. We think, perhaps with truth, that the nineteenth century has been a period of unprecedented growth and progress; but every century has probably witnessed an unprecedented advance in civilization, simply because the process is cumulative, if no catastrophes arrest it. It is one of the most important functions of universities to store up the accumulated knowledge of the race, and so to use these stores that each successive generation of youth shall start with all the advantages which their predecessors have won. Therefore a university, while not neglecting the ancient treasures of learning, has to keep a watchful eye upon the new fields of discovery, and has to invite its students to walk in new-made as well as in long-trodden paths. Concerning the direct educational influence of all these new subjects the race cannot be said to have much accumulated wisdom.

One presumption of considerable scope may, how-

ever, be said to be established by experience. In every new field of knowledge the mental powers of the adventurers and discoverers found full play and fruitful exercise. Some rare human mind or minds must have laboriously developed each new subject of study. It may fairly be presumed that the youth will find some strenuous exercise of his faculties in following the masters into any field which it taxed their utmost powers to explore and describe. To study the conquests of great minds in any field of knowledge must be good training for young minds of kindred tastes and powers. That all branches of sound knowledge are of equal dignity and equal educational value for mature students is the only hopeful and tenable view in our day. Long ago it became quite impossible for one mind to compass more than an insignificant fraction of the great sum of acquired knowledge.

Before I leave the subject of election of studies, let me point out that there is not a university of competent resources upon the continent of Europe in which complete freedom of studies has not long prevailed; and that Oxford and Cambridge have recently provided an almost complete liberty for their students. In our own country respectable colleges now offer a considerable proportion of elective studies, and as a rule the greater their resources in teachers, collections, and money, the more liberal their application of the elective principle. Many colleges, however, still seem to have but a halting faith in the efficacy of the principle, and our educated public has but just begun to ap-

preciate its importance. So fast as American institutions acquire the resources and powers of European universities, they will adopt the methods proper to universities wherever situate. At present our best colleges fall very far short of European standards in respect to number of teachers, and consequently in respect to amplitude of teaching.

As yet we have no university in America—only aspirants to that eminence. All the more important is it that we should understand the conditions under which a university can be developed—the most indispensable of which is freedom in choice of studies.

II. A university must give its students opportunity to win distinction in special subjects or lines of study. The uniform curriculum led to a uniform degree, the first scholar and the last receiving the same diploma. A university cannot be developed on that plan. It must provide academic honors at graduation for distinguished attainments in single subjects. These honors encourage students to push far on single lines; whence arises a demand for advanced instruction in all departments in which honors can be won, and this demand, taken in connection with the competition which naturally springs up between different departments, stimulates the teachers, who in turn stimulate their pupils. The elaborate directions given by each department to candidates for honors are so many definite pieces of advice to students who wish to specialize their work. It is an incidental advantage of the system that the

organization of departments of instruction is promoted by it. The teachers of Latin, of history, or of philosophy, find it necessary to arrange their courses in orderly sequence, to compare their methods and their results, and to enrich and diversify as much as possible the instruction which they collectively offer. Many European universities, but especially the English, offer honors, or prizes, or both of these inducements, for distinguished merit in specialties; and the highly valued degree of Ph. D. in Germany is a degree given for large attainments in one or two branches of knowledge, with mention of the specialty. The Harvard faculty announced their system of honors in 1866–67, and they certainly never passed a more effective piece of legislation. In 1879 they devised a lesser distinction at graduation called honorable mention, which has also worked very well. To get honors in any department ordinarily requires a solid year and a half's work; to get honorable mention requires about half that time. The important function of all such devices is to promote specialization of work and therefore to develop advanced instruction. It is unnecessary to point out how absolutely opposed to such a policy the uniform prescription of a considerable body of elementary studies must be.

III. A university must permit its students, in the main, to govern themselves. It must have a large body of students, else many of its numerous courses of highly specialized instruction will find no hearers, and the students themselves will

not feel that very wholesome influence which comes from observation of and contact with large numbers of young men from different nations, States, schools, families, sects, parties, and conditions of life. In these days a university is best placed in or near the seat of a considerable population; so that its officers and students can always enjoy the various refined pleasures, and feel alike the incitements and the restraints, of a highly cultivated society. The universities of Rome, Paris, Vienna, Berlin, Leipsic, Christiania, Madrid, and Edinburgh forcibly illustrate both of these advantages. These conditions make it practically impossible for a university to deal with its students on any principle of seclusion, either in a village or behind walls and bars. Fifteen hundred able-bodied young men living in buildings whose doors stand open night and day, or in scattered lodging-houses, cannot be mechanically protected from temptation at the university any more than at the homes from which they came. Their protection must be within them. They must find it in memory of home, in pure companionship, in hard work, in intellectual ambition, religious sentiment, and moral purpose. A sense of personal freedom and responsibility reinforces these protecting influences, while the existence of a supervising authority claiming large powers which it has no effective means of exercising weakens them. The *in loco parentis* theory is an ancient fiction which ought no longer to deceive anybody. No American college, wherever situated, possesses any method

of discipline which avails for the suppression or exclusion of vice. The vicious student can find all means of indulgence in the smallest village, and the worst vices are the stillest. It is a distinct advantage of the genuine university method that it does not pretend to maintain any parental or monastic discipline over its students, but frankly tells them that they must govern themselves. The moral purpose of a university's policy should be to train young men to self-control and self-reliance through liberty. It is not the business of a university to train men for those functions in which implicit obedience is of the first importance. On the contrary, it should train men for those occupations in which self-government, independence, and originating power are preëminently needed. Let no one imagine that a young man is in peculiar moral danger at an active and interesting university. Far from it. Such a university is the safest place in the world for young men who have anything in them — far safer than counting-room, shop, factory, farm, barrack, forecastle, or ranch. The student lives in a bracing atmosphere; books engage him; good companionships invite him; good occupations defend him; helpful friends surround him; pure ideals are held up before him; ambition spurs him; honor beckons him.

CAN SCHOOL PROGRAMMES BE SHORTENED AND ENRICHED?

Washington Meeting of the Department of Superintendence of the National Educational Association, February 16, 1888

CAN SCHOOL PROGRAMMES BE SHORTENED AND ENRICHED?

IN the process of improving the secondary schools, colleges, and professional schools of the United States,— a process which has been carried on with remarkable energy since the Civil War,— certain new difficulties have been created for the higher education in general, and particularly for colleges. These difficulties have to do with the age at which young men can get prepared for college, and therefore with the ages at which boys pass the successive stages of their earlier education. The average age of admission to Harvard College has been rising for sixty years past, and has now reached the extravagant limit of eighteen years and ten months. Harvard College is not at all peculiar in this respect; indeed, many of the country colleges find their young men older still at entrance. The average college graduate is undoubtedly nearly twenty-three years old at graduation; and when he has obtained his A. B. he must nowadays allow at least three years for his professional education.

In respect to the length of time required for a satisfactory professional training, there has been a great change since the War. Twenty years ago the period of residence at Harvard University for the degree of Bachelor of Laws was eighteen months; now it is three years. Many of the States of the American Union have passed laws which practically make three years the normal period of study before admission to the bar. Ambitious medical students are giving four years to their medical training. Twenty years ago the leading colleges were satisfied to take men just graduated in arts as tutors in Latin, Greek, and mathematics. Now they expect a candidate for a tutorship or instructorship to have devoted two or three years to study after taking his bachelor's degree. School boards and trustees have become correspondingly exacting. In short, professional education in the United States is becoming constantly more thorough and elaborate, and is therefore demanding of aspirants to the professions more and more time. The average college graduate who fits himself well for any one of the learned professions, including teaching, can hardly begin to support himself before he is twenty-seven years old.

This condition of things is so unreasonable in a new country like the United States — being hardly matched in the oldest and most densely peopled countries of Europe — that some remedy is urgently demanded; and the first partial remedy that suggests itself is to reduce the average age of admission to college to eighteen. This reduction

would save about a year. In effecting this saving of time, it is greatly to be wished that no reduction should be made in the attainments which the average candidate for admission now brings to the American colleges; for it is probable that the saving thus effected will not be sufficient in itself, and that the public interests will require in addition some shortening of the ordinary college course of four years. College men, therefore, are anxiously looking to see if the American school courses can be both shortened and enriched,—shortened, so that our boys may come to college at eighteen instead of nineteen, and enriched, in order that they may bring to college at eighteen more than they now bring at nineteen, so that the standard of the A. B. may not be lowered.

The anxiety with which men charged with the conduct of college education look at this question is increased by the relative decline of American colleges and universities as a whole. This relative decline, which was pointed out nearly twenty years ago by President Barnard of Columbia College, is very visible of late years. The population of the United States is supposed by the best authorities to increase about one third in every period of ten years. In the ten-year period from 1875 to 1884 inclusive, the universities and colleges included in the tables published by the Commissioner of Education show an increase in their number of students of only 11 per cent., instead of $33\frac{1}{3}$ per cent. If we select from the same tables the ten-year period from 1876 to 1885, the increase is 16 per cent.; but

the explanation of this higher percentage of increase is that the total number of students in the year 1876 was abnormally low, being 2400 below the number of 1875. If we add to the institutions enumerated as universities and colleges all the schools of science and all the higher institutions for the education of women, we still find that this enlarged list of institutions has not gained students at the same rate at which the population has increased, although the schools of science have made very large gains in the decade referred to. Thus the increase in the number of students in universities and colleges, schools of science, and women's colleges, all taken together, was only 23 per cent. in the ten years from 1875 to 1884 inclusive. Obviously there are serious hindrances affecting all the institutions which receive young men and women at the age of eighteen or nineteen to keep them under liberal training for three or four years. One of these hindrances undoubtedly is that the colleges as a whole held too long to a medieval curriculum; but a greater hindrance, in all probability, is the burden imposed upon parents when their elaborately educated sons cannot support themselves in their professions until they are twenty-seven or twenty-eight years old. Hence the importance of the inquiry, Can school programmes be shortened and enriched?

In studying this problem it is natural to turn first to the schools sometimes called preparatory — that is, to the best high schools and academies; but if we examine the courses of study in these

schools we find that the four years during which they keep their pupils are generally crowded with work. Thus the Phillips Academy, at Exeter, New Hampshire, one of the best academies in the United States, has a four years' course which is so full that hardly any suggestion can be made for compacting or abbreviating it. But what are the requirements for admission to Exeter? "Some knowledge of common-school arithmetic, writing, and spelling, and of the elements of English grammar." These requirements might reasonably be made of a boy leaving the primary school at eight years of age; yet the average age of admission to Exeter is sixteen and one half. Now, Exeter is an academy which does not content itself with such low terms of admission unless under compulsion. It would require more if it could get more from the average candidate; but it draws its pupils from a wide area, and its experience is against making greater demands. The Exeter course is itself encumbered with some studies suitable for a boy of ten. Thus it devotes much time to arithmetic, and teaches the very elements of English and English literature. A secondary school which is obliged to take its pupils in the average condition of the boys who enter Exeter can hardly do more for them in the four years between sixteen and twenty than is now accomplished at that academy. What is true of Exeter is true of the whole body of upper schools. They have to make good the deficiencies of the lower schools. It is necessary, therefore, to examine the American school programmes from the begin-

ning, to start with the primary school and go on through the grammar school and the high school, searching for the places where time and labor can be saved.

The subject seems to be one chiefly interesting to colleges, but really it has a much broader scope. In the first place, whatever improves the school programmes for those children whose education is to be prolonged, perhaps, until they are twenty-five years old, will improve the programmes also for the less fortunate children whose education is to be briefer. The public schools will never send to higher institutions any very large proportion of the children who are trained in them; but their programmes may best be made substantial and systematic by fitting them to the needs of their most intelligent and fortunate pupils. Moreover, we may reasonably strive to make every grade of the public-school programme,—primary, grammar, and high,—and, indeed, every year in any programme, a thing good in itself, as well as a good introduction to the course of study which lies beyond it. The better the programme is in itself, the better it will be as a preparation for further study. To the primary and grammar schools this principle applies in all its fullness. In the high school and academy the principle needs qualification for the foreign languages only, and for that portion of the programme options should be allowed. The question, Can American school programmes be at once condensed and enriched? has, then, a wide scope, and touches the interests of the whole population.

As evidence conducing to the formation of a just opinion upon the practicability of shortening and enriching our school programmes, an actual comparison of two public-school programmes,— one French and one American,— covering the ages of eight to seventeen inclusive, is printed on pages 171–176. One programme is that of the French secondary schools, which is followed all over France in the institutions called *lycées;* the other is the programme made by uniting the first three years of the Boston grammar schools with the complete course of the Boston Latin School. It is assumed that the Boston schools are a fair type for the country. Indeed, the Boston Latin School is supposed to be the best, as it is the oldest, American classical school which is supported by local taxation. In the tables referred to the programmes are placed side by side, so that the courses for the same years of age can be conveniently compared. It is in each case the classical course which is tabulated; but a similar comparison could be instituted between the corresponding programmes in which Latin and Greek are replaced by other subjects. In the French schools Latin and Greek can be in large part replaced by mathematical and scientific studies, and in Boston the English High School offers a programme like that of the Latin School, but with similar substitution of mathematical and scientific studies for all the Greek and some or all of the Latin. The present purpose can be fully accomplished by limiting the comparison to the classical programmes. The French

programme was chosen rather than the programme of a German gymnasuim, because it is a lower term of comparison, the German programme being more comprehensive, elaborate, and difficult. The French programme is a recent reduction of a programme in force from 1880 to 1885, the reduction amounting to about twenty per cent., and the number of recitations per week in the two programmes (French and American) is nearly the same. It is the best of foreign programmes as a term of comparison, because France is socially a democratic country, politically a republic, and industrially a country whose chief reliance, in the strenuous competition to which its population is exposed within and without, is the intelligence and skill of its producing classes. In all these respects France and the United States closely resemble each other. Moreover, the French boy has no possible advantage over the American boy in strength of constitution, intelligence, or endurance; on the contrary, he is not so large a boy as the American on an average, and he is not so well fed.

A very brief examination of these two programmes side by side reveals several important facts. The French programme is decidedly the more substantial; that is to say, it calls for greater exertion on the part of the pupil than the American, introduces the children earlier to serious subjects, and is generally more interesting and more stimulating to the intelligence. For example, at eight years of age the French boy begins to study a foreign lan-

guage, either English or German; the American boy begins to study a modern language five years later, at thirteen, when the best period for learning a foreign tongue is already past. The French boy of eight begins the study of history in a very interesting and stimulating way through the study of biography; the American boy gets no history until he is thirteen, when he begins Greek history. The French boy of eight gives just one third of the time to arithmetic that the American boy gives, and in the whole course does not give to that subject more than one third the time the American boy gives; yet, for practical purposes, the French are quite as skilful with numbers as the Americans. The French boy gets at natural history earlier than the American boy, and in better subjects. Again, the French programme represents an actual fact, the large majority of French boys passing regularly through it at the ages indicated in the programme; whereas the programme of the Boston Latin School, prepared for the years from eleven to sixteen inclusive, actually covers the years from thirteen to eighteen inclusive. In comparing the attainments of the Boston boy with those of the French boy we must therefore add two full years to the ages set down in the American programme. The inferiority of the Boston programme then becomes very conspicuous. There is no single subject touched in the American programme in which the French boy does not accomplish more than the American. This appears very clearly on comparing the amounts of Latin and Greek set down in the two pro-

grammes, but equally plainly in geometry and physics. Moreover, the French course extends a year beyond the American course, and in the class called philosophy gives a comprehensive survey of philosophy and ethics, a thing never attempted in the United States with boys of seventeen, yet found practicable and in the highest degree useful in the French republic. The preponderance of the French language, the mother-tongue, in the French programme is most noticeable. Until Latin and Greek are introduced, French occupies half of the whole course. When the study of Latin and Greek is at its height, French still claims a substantial portion of the programme; and in the final year, the year called philosophy, French resumes almost exclusive possession of the programme. Great improvements have been made during the last ten years in the study of English and English literature in the best American schools; but the mother-tongue does not yet hold anything like the place in American schools that French holds in the French schools. In the French lycées geometry comes before algebra, and with the help of drawing is treated thoroughly before algebra is seriously attacked, plane geometry being finished by the time the boy is fourteen years of age. At the Boston Latin School, on the other hand, plane geometry is not completed until the boy is seventeen according to the programme, and nineteen in reality. This brief discussion of the two programmes may reasonably convince any one that the French boy makes a much greater total attainment by the time he is

eighteen than the American boy has a chance to make at the best American schools by the time he is nineteen. Thorough study of them will only strengthen this conviction.

The comparison thus instituted gives no warrant for impatient, revolutionary action. The transformation it suggests is not to be wrought in a year, but should be the aim of patient labor during many years. Everybody knows that foreign institutions of education cannot be imported; that a nation's educational institutions are strongly influenced by its political, ethical, and industrial conditions, and that the improvement of schools and colleges must necessarily be slow. It may, however, be justly inferred from this comparison of programmes that the condition of secondary schools in the United States is at present one of inferiority; that the country ought not to be satisfied with that condition, and indeed should strenuously exert itself to improve it, there being opportunity in American programmes for both condensation and enrichment. If it be said that the American boy turns out pretty well after all, and that the American community, as a whole, is as intelligent as the French or the German community, the ready answer is that free institutions are in themselves a considerable education for the population; but that the advantage which the nation has over Europe in possessing free institutions ought not to reconcile it to a position of inferiority as regards schools; it ought to aim to have the best schools, too. If it be practicable to make American primary and

secondary schools better, the work of improvement should be set on foot.

The fair inference from the above tables being that improvement is practicable, it will not be unprofitable to consider some of the means of improving the American public school, from the primary grade through the high school.

1. In the first place, better programmes need better teachers. The great difference between the French and German secondary schools and the American is in the quality of the teachers. Two modes of improving the general body of teachers in the public schools demand special attention. In the first place, school committees, superintendents, teachers themselves, and all friends of public education should constantly strive to procure a better tenure of office for American teachers. The American schools will never equal the schools of Germany and France until well-proved teachers can secure a tenure during good behavior and efficiency, like teachers in those countries. Consideration, dignity, and quietness of mind go with a permanent tenure, and the public-school service will never compete successfully with the service of private educational corporations in this country until the public employ is as good as the private employ in this regard. Secondly, the average skill of the teachers in the public schools may be increased by raising the present low proportion of male teachers in the schools. Herein lies one of the great causes of the inferiority of the American teaching to the French and German teaching. The proportion of women

teachers in American schools is vastly greater than it is in Europe. The larger the proportion of women in any system of public schools, the larger will be the percentage of new appointments every year, and the larger the amount of work done by temporary substitutes. New appointments and substitutes generally mean inexperienced teachers, or, at the best, teachers suddenly put to work in unaccustomed places. This superiority of men as teachers has, of course, nothing whatever to do with the relative intelligence or faithfulness of men and women. It is a well-known fact that many women enter the public schools as teachers without any intention of long following the business; and also that women are absent from duty from two to three times as much as men. Young men who take up teaching as a temporary expedient are also unsatisfactory material. The schools need the life-work of highly trained and experienced teachers. After these two most important means of raising the average quality of public-school teachers come lesser means which ought not to be neglected; thus, superintendents and committees can do something to improve teachers by invariably advocating the expenditure of money for teaching, rather than for mechanical appliances or buildings. Cheap teachers and expensive apparatus and buildings are precisely the reverse of wise practice, particularly if the fine buildings are not fire-proof after all. Again, the teaching of the public schools can, of course, be improved by the establishment of teachers' examinations, which

secure a better preparation in the average teacher, and by methods of supervision which make known the relative merits of teachers who are on probation. Good progress has been made in this direction during the past ten years (1878–88).

2. The second direction of untiring effort should be to the improvement of programmes; for the programmes are all-important to the steady development of the whole system of schools from top to bottom. A good programme will, of course, not execute itself; it must be vivified by the good teacher; but an injudicious programme is an almost insuperable obstacle to the improvement of a city's schools. As a rule, the American programmes do not seem to be substantial enough, from the first year in the primary school onward. There is not enough meat in the diet. They do not bring the child forward fast enough to maintain his interest, and induce him to put forth his strength. Frequent complaint is made of overpressure in the public schools, but Friedrich Paulsen is probably right in saying that it is not work which causes overfatigue so much as lack of interest and lack of conscious progress. The sense that, work as he may, he is not accomplishing anything will wear upon the stoutest adult, much more upon a child. One problem in arithmetic which he cannot solve will try a child more than ten he can solve. One hour of work in which he can take no intelligent interest will wear him out more than two hours of work in which he cannot help being interested. Now, the trouble with much of the work in the public schools is that

it is profoundly and inevitably uninteresting to the childish mind. To enrich the school programme, therefore, and to make serious subjects follow each other in it more rapidly than now, is not necessarily to increase the strain upon the child; it is, however, necessarily to increase the skill demanded of the teacher, and hence the improvement of teachers must go hand in hand with the improvement of programmes. The best way to diminish strain is to increase interest, attractiveness, and the sense of achievement and growth. American teaching in school and college has been chiefly driving and judging; it ought to be leading and inspiring. Here are these beautiful fields — I will show you the way through them. Here are these rewarding exercises — I will show you how to practise them. Here are these heights — I will lead you up them.

3. Much time can be saved in primary and secondary schools by diminishing the number of reviews, and by never aiming at that kind of accuracy of attainment which reviews, followed by examinations, are intended to enforce. Why should an accuracy of knowledge and of statement be habitually demanded of children which adults seldom possess? How many well-educated adults can add long columns of figures correctly, or find the least common multiple or the greatest common divisor of six or eight numbers? Nothing but practice can keep one skilful in these exercises, and we may reasonably be grateful that few people are compelled to keep in the necessary practice. Few

adult minds retain accurately considerable masses of isolated facts; and it is commonly observed that minds which are good at that are seldom the best minds. Why do we try to make children do what we do not try to do ourselves? Instead of mastering one subject before going to another, it is almost invariably wise to go on to a superior subject before the inferior has been mastered — mastery being a very rare thing. On the mastery theory, how much new reading or thinking should we adults do? Instead of reviewing arithmetic, study algebra; for algebra will illustrate arithmetic and supply many examples of arithmetical processes. Instead of re-reading a familiar story, read a new one; it will be vastly more interesting, and the common words will all recur — the common words being by far the most valuable ones. Instead of reviewing the physical geography of North America, study South America. There, too, the pupil will find mountain-chains, watersheds, high plateaus, broad plains, great streams, and isothermal lines. The really profitable time to review a subject is not when we have just finished it, but when we have used it in studying other subjects, and have seen its relations to other subjects and what it is good for. For example, the French programme puts a review of arithmetic, algebra, and geometry into the last year. With all his mathematical powers strengthened by the study of algebra and geometry, and with all the practice of arithmetic which his study of mensuration and algebra has involved, the boy returns at seventeen to arith-

metic and finds it infinitely easier than he did at fourteen. Further, the French boy has escaped those most exasperating of arithmetical puzzles which a little easy algebra enables one to solve with facility. Many an educated New-Englander remembers to this day the exasperation he felt when he discovered that problems in Colburn's Sequel, over which he had struggled for hours, could be solved in as many minutes after he had got half-way through Sherwin's Algebra. Is it not an abominable waste of the time and strength of children to put them to doing in a difficult way, never used in real life, something they will be able to do in an easy way a year or two later? To introduce any artificial hardness into the course of training that any human being has to follow is an unpardonable educational sin. There is hardness enough in this world without manufacturing any, particularly for children. On careful search through all the years of the public-school programmes now in use, many places will be found where time can be saved and strain lessened by abandoning the effort to obtain an exaggerated and wholly unnatural accuracy of work. It is one of the worst defects of examinations that they set an artificial value upon accuracy of attainment. Good examination results do not always prove that the training of the children examined has been of the best kind.

4. In almost all the numerous collections of school statistics now published in this country, it appears that the various grades contain children much too old for them, who have apparently been

held back. This phenomenon seems to be due partly to the ambition of teachers and partly to the caution of parents. To illustrate with a specific case: in the Boston primary schools, which are intended for children of five to seven years of age inclusive, 44 per cent. of all the children for three years past were over seven; and in the grammar schools of the same city, which are intended for children of from eight to thirteen years inclusive, from 20 to 24 per cent. were over thirteen. It has already been mentioned that the average age of admission to the Latin School is not eleven years, as indicated in the programme, but thirteen years. It is really thirteen years and three months. For three years past, from one third to one half of the graduating classes of the Boston grammar schools have been more than six years in the schools, the programme calling for but six years. In the Boston primary and grammar schools the tendency is in the wrong direction; that is, in 1887 there was a larger proportion of pupils over age than in 1877. The ambition of teachers tends to keep children too long in the several grades, because they desire to have their pupils appear well at the periodical examinations, and also because they like to keep in their classes the bright children as aids to the dull ones. The caution of parents tends to produce the same difficulty because they fear overpressure; not comprehending that with children, as with adults, it is not work so much as worry that injures, or finding that the existing system adds worry to work. The exaggerated notion that

it is necessary to master one thing before a child goes to another is also responsible for the retardation of children on their way through the regular course. The result of this retardation is that the boy comes too late to the high school or to the Latin School, and so fails to complete that higher course if he is going into business, or comes too late to college if his education is to be more prolonged. The great body of children ought to pass regularly from one grade to another, without delay, at the ages set down on the programme; and any method of examination which interferes with this regular progress does more harm than good. Of late years many experiments have been made on semiannual promotions and other means of hurrying forward the brighter children. The aim of these experiments is laudable; but the statistics suggest a doubt whether semiannual promotions really promote, and whether they do not disturb to an inexpedient degree the orderly progress of the school work. In general the work of any school must be laid out by years, and on this account irregular promotions will hardly provide a remedy against the common evil of retardation.[1]

5. If we look back a generation, or two generations, in the history of American schools, we shall find that the time spent in school by children during a year has been decidedly reduced; although great improvements have been made during the same period in the ventilation of school build-

[1] Irregular and rapid promotion has been greatly facilitated since 1888.

ings, and various bodily exercises, such as singing, gymnastics, and military drill, have been introduced. This reduction of school hours has gone quite far enough, and some steps need to be taken in the other direction. The ideal school should be so conducted that the child's physique is not impaired by attending it, or his enjoyment of his daily life lessened. Then longer school hours would not be unsafe or unwelcome. It should be the teachers that need rest and vacation, and not the children. In cities vacation schools seem to be a desirable addition to our present organization. A long vacation may be a very good thing for children who have at home some intellectual resources, or who can go to the country or to the sea in vacation, and there learn some things not found in books; but for children of ignorant or heedless parents, who have nothing of intellectual life to offer them at home, a long vacation is likely to be a serious injury, particularly in cities and large towns. Vacation schools tend to bring forward, or keep up, the least favored children, thus accelerating the general rate of progress during the year.

The chief objects of this address are, first, to point out a serious difficulty which is embarrassing the whole course of American education; and, secondly, to indicate briefly a few of the directions in which labor may be wisely spent in improving our school system, to the general end that the pupils may receive a better training in a shorter time. The professional experience and zeal of superintendents and teachers will know how to devise and execute appropriate measures of relief and improvement.

FRENCH AND AMERICAN PUBLIC-SCHOOL PROGRAMMES COMPARED

[To illustrate the preceding address.]

PROGRAMME OF STUDIES (1885) IN THE SECONDARY SCHOOLS OF FRANCE.

CLASSICAL COURSE.

[*In the preparatory class and in the eighth and seventh classes the number of hours of teaching per week is* 20, *including* 1 *hour a week for drawing.*]

PREPARATORY CLASS. Age 8 yrs.

FRENCH. 9½ hours a week. Reading, spelling, writing, and the most elementary rules of grammar.

GERMAN OR ENGLISH. 4 h. a wk. Exercises in reading and writing. Pronunciation. Accent. Indispensable paradigms.

HISTORY. 1½ h. a wk. Biographies of illustrious men—travelers, patriots, inventors. Talks on great personages in French history down to 1789.

GEOGRAPHY. 1½ h. a wk. Meaning of the principal terms in physical geography, illustrated from the town or county. Outlines of the physical geography of France. Geographical drawing, illustrated with the globe, chart, and blackboard. The continents.

ARITHMETIC. 1½ h. a wk. Mental arithmetic — whole numbers.

OBJECT-LESSONS. 1 h. a wk. Coal, metals, coins, clouds, rain, snow, ice, springs, brooks, lakes, wells, canals, sea-water, salt, wind, storms, familiar animals and plants. [This set of subjects lasts 2 yrs.]

DRAWING. 1 h. a wk. Straight lines, angles, circles, polygons, stars, ellipses, spirals, the curves of plants, first notions of perspective. [This set of subjects lasts 3 yrs.]

EIGHTH CLASS. Age 9 yrs.

FRENCH. 9 h. a wk. Reading, spelling, writing, grammar, and little compositions. Descriptions reproduced.

GERMAN OR ENGLISH. 4 h. a wk. First notions of grammar, reading, writing, spelling, common phrases. English text-book — Miss Edgeworth's Tales.

HISTORY. 1½ h. a wk. Outline of French history to Louis XI.

PROGRAMME OF STUDIES (1887) IN THE BOSTON GRAMMAR SCHOOLS (FIRST THREE YEARS) AND THE PUBLIC LATIN SCHOOL.

[*In the Grammar Schools the number of hours of teaching per week is* 22, *including the drawing and music.*]

SIXTH CLASS. Grammar School (1st year of course). Age 8 yrs.

ENGLISH. 11 hours a week. Oral and written exercises. Reading. Science lessons, pictures illustrating trades, etc., stories reproduced. Recitation. Writing from blackboard and from dictation. Letter-writing. An authorized reader.

GEOGRAPHY. 2 h. a wk. The earth a ball. Maps. Hemispheres, continents, oceans, climates, most important countries, peoples, cities.

ARITHMETIC. 4½ h. a wk. Whole numbers to 100,000. Decimals. U. S. money. Liquid and dry measures. Oral exercises.

ELEMENTARY SCIENCE. 2 h. a wk. Human body with reference to hygiene. Plants (May to July), seedlings, sponge, coral, oyster, clam, snail. Shells, air, wind, rain, frost, snow, hail, ice.

DRAWING. 1½ h. a wk. Circle, ellipse, oval. Curves. Polygons. Drawing from dictation and from memory.

MUSIC. 1 h. a wk. Exercises and songs. Writing exercises.

FIFTH CLASS (Grammar School). Age 9 yrs.

ENGLISH. 11 h. a wk. Same methods as in preceding year.

ELEMENTARY SCIENCE. 2 h. a wk. Hygiene. Plants (Sept. to Nov., and May to July). Animals — lobster and insects. Sun, moon, and stars. Drainage of vicinity. Rocks and soils.

FRENCH PROGRAMME.

GEOGRAPHY. 1½ h. a wk. Elementary geography of Europe, Asia, Africa, America, and Oceanica. Voyages of discovery.
ARITHMETIC. 2 h. a wk. Whole numbers. Exercises in mental arithmetic. Easy problems.
OBJECT-LESSONS. 1 h. a wk. Exercises on some of the objects mentioned in the programme for the preparatory class.
DRAWING. 1 h. a wk. Same as for the preparatory class.

SEVENTH CLASS. Age 10 yrs.

FRENCH. 9 h. a wk. As in previous years. Syntax.
GERMAN OR ENGLISH. 4 h. a wk. Grammar. Auxiliary and irregular verbs. Easy prose. Exercises in reading and conversation. English texts — Sanford and Merton, and Old Poz.
HISTORY. 1½ h. a wk. History of France from Louis XI to 1815.
GEOGRAPHY. 1½ h. a wk. Elementary geography of France.
ARITHMETIC AND GEOMETRY. 2 h. a wk. Whole numbers and decimals. Metric system. Geometrical figures.
STONES AND SOILS. 1 h. a wk. Limestones, lime-kilns, mortars, plaster, clay, bricks, pottery, quartz, flint, grindstones, granite, sands, drift, mold, soils, fossils, quarries, volcanoes.
DRAWING. 1 h. a wk. Same as for the preparatory class.

[*In the sixth and higher classes the number of hours of instruction per week is* 20, *with* 2 *hours of drawing in addition.*]

SIXTH CLASS. Age 11 yrs.

FRENCH. 3 h. a wk. Grammar. Extracts in prose and verse from French classics. La Fontaine's fables. Simple compositions.
LATIN. 10 h. a wk. Elements of grammar. Viri Romæ. Translation of French phrases into Latin.
GERMAN OR ENGLISH. 2 h. a wk. Grammar, reading, conversation, written exercises. English texts — Edgeworth's Tales, Aikin and Barbauld's Evenings at Home, Primer of English history.
HISTORY. 2 h. a wk. Ancient history of the Orient — Egypt, Assyria, Palestine, Phœnicia, Persia.
GEOGRAPHY. 1 h. a wk. Europe and the Mediterranean basin.

BOSTON PROGRAMME.

GEOGRAPHY. 2 h. a wk. Important countries — our own first. Natural features, climate, productions, people, government, customs, and cities.
ARITHMETIC. 4½ h. a wk. Whole numbers and decimals continued. Avoirdupois weight, and units of time. Oral problems in common fractions.
DRAWING. 1½ h. a wk. Objects in two dimensions. Octagon, spiral, simple ornament.
MUSIC. 1 h. a wk. Chromatic scale. Breathing. Songs.

FOURTH CLASS (Grammar School). Age 10 yrs.

ENGLISH. 10 h. a wk. Oral and written expression, including writing 5 h. Reading 5 h. More advanced books and methods.
HYGIENE. 1 h. a wk. Continued.
ARITHMETIC. 4½ h. a wk. Common fractions. Long, square, and solid measures. Decimals continued.
GEOGRAPHY. 3 h. a wk. Meridians and parallels, zones, winds, and ocean currents, climate as affecting man. Physical geography of North America, South America, and Europe. Map-drawing. Apparent motions of sun, moon, and stars. Seasons.
OBSERVATION LESSONS. 1 h. a wk. Common metals, minerals, and rocks.
DRAWING. 1½ h. a wk. Ornament. Geometric forms. Elementary design from plant forms. Objects based on the oval. Cylinder, cone, and vase. Drawing from memory.
MUSIC. 1 h. a wk. Scale and staff intervals. Different keys to three sharps and four flats.

[*In the Latin School the number of hours of instruction per week is* 20, *including* 2 *hours of military drill.*]

SIXTH CLASS (Latin School). Age 11 yrs.

ENGLISH. Not less than 3 h. a wk. Reading aloud and recitation of selections from prose and poetry. Reading the history of the United States. Grammar. Oral and written abstracts. Writing. Spelling.
LATIN. Regular forms. Latin into English, and English into Latin. Writing Latin from dictation. Vocabulary.
GEOGRAPHY. Physical and political geography, with map-drawing of the United States, the countries of Europe, and the other countries of North America.
ARITHMETIC. Review. Metric system. Percentage, with applications.

FRENCH PROGRAMME.

ARITHMETIC AND GEOMETRY. 1 h. a wk. Common fractions. Decimals. Sphere, poles, meridians, parallels. Latitude and longitude.

ZOÖLOGY. 1 h. a wk. Man. Vertebrates. Articulates. Worms. Mollusks. Fauna of the principal regions of the globe.

DRAWING. 2 h. a wk. Perspective with shadows. Drawing from ornaments in relief, from architectural fragments, from the human head. [These subjects serve for 2 yrs.]

FIFTH CLASS. Age 12 yrs.

FRENCH. 3 h. a wk. As in preceding year. Extracts from La Fontaine, Boileau, Racine, Fénelon, Buffon.

LATIN. 10 h. a wk. to Jan. 1, 8 h. thereafter. Grammar, syntax, elements of prosody. Extracts from Phædrus, Ovid, and Nepos. Latin theme, written and oral.

GREEK. 2 h. a wk. from Jan. 1. Grammar, accent, paradigms.

GERMAN OR ENGLISH. 2 h. a wk. Reading, writing, conversation, translation. English texts — Scott's Tales of a Grandfather, Franklin's Autobiography, Primer of the History of Greece.

HISTORY. 2 h. a wk. History of Greece.

GEOGRAPHY. 1 h. a wk. The oceans. Physical geography of Africa, Asia, Oceanica, and America. Principal states, capitals, and commercial ports. European possessions.

ARITHMETIC AND GEOMETRY. 1 h. a wk. Rule of three. Interest, discount, measurement of areas and volumes.

BOTANY. 1 h. a wk. Organs of a plant — root, stem, leaf, flower, fruit, seed. Divisions of the vegetable kingdom, illustrated. Outlines of the flora of the principal regions of the globe.

DRAWING. See the preceding year.

FOURTH CLASS. Age 13 yrs.

FRENCH. 2 h. a wk. Grammar finished. Extracts from Racine, Madame de Sévigné, and Montesquieu. Differences between French and Latin construction.

LATIN. 5 h. a wk. first ½ yr.; 6 h. a wk. second ½ yr. Extracts from Vergil and Ovid. Cæsar's Gallic War. Quintius Curtius. Latin composition, oral and written.

GREEK. 6 h. a wk. Grammar, elements of syntax, simple compositions. Extracts from Xenophon and Lucian.

BOSTON PROGRAMME.

GEOMETRY. Oral. Forms and simple propositions.

PHYSIOLOGY. Oral instruction, to begin March 1.

MILITARY DRILL. 2 h. a wk.

FIFTH CLASS (Latin School). Age 12 yrs.

ENGLISH. Not less than 3 h. a wk. Prose — Tanglewood Tales, Autobiography of Franklin, History of England; poetry — selections from Holmes, Bryant, and Scott. Methods those of previous years.

LATIN. Translation of easy prose and of Cæsar's Gallic War, Bks. I and II. Unprepared translation. Writing from dictation. Committing passages to memory. English into Latin — sentences like Cæsar's.

GEOGRAPHY. Physical and political geography of South America, West Indies, Asia, Africa, and Oceanica, with map-drawing.

ARITHMETIC. Oral and written. Percentage, including simple and compound interest, discount, and partial payments. Compound numbers. Ratio and proportion. Powers and roots.

GEOMETRY. Mensuration, with oral geometry.

ZOÖLOGY. Oral instruction, to begin March 1.

MILITARY DRILL. 2 h. a wk.

FOURTH CLASS (Latin School). Age 13 yrs.

ENGLISH. Not less than 3 h. a wk. Prose — Church's Stories from Homer, Two Years before the Mast, Plutarch (Greek Lives); poetry — selections from Lowell, Gray, and Goldsmith. Abstracts, descriptions, oral exercises.

LATIN. Cæsar's Gallic War, Bks. III and IV; Ovid, 1000 lines; Æneid, Bk. I. Some prosody. Same methods as before.

FRENCH OR GERMAN. Pronunciation. Regular verbs. Translation of easy prose. Writing from dictation. Vocabulary. English into French or German.

FRENCH PROGRAMME.

GERMAN OR ENGLISH. 2 h. a wk. Reading, writing, conversation, translation. English texts — De Foe's Robinson Crusoe, Irving's Voyages of Columbus, Miss Corner's History of Rome.

HISTORY. 2 h. a wk. History of Rome.

GEOGRAPHY. 1 h. a wk. Geography of France. French colonies.

GEOMETRY. 1 h. a wk. Straight line, angles, triangles, parallelogram, circle, secant, tangent, measure of angles.

GEOLOGY. 1 h. a wk. first ½ yr. The principal rocks. Continuous changes of the earth's crust. Principal geologic periods, primary, secondary, tertiary, and glacial.

DRAWING. 2 h. a wk. From architectural fragments. The human figure, from prints and bas-reliefs. Some mechanical drawing of architectural designs.

THIRD CLASS. Age 14 yrs.

FRENCH. 2 h. a wk. Authors — Corneille, Racine, Boileau, Bossuet, Fénelon. Compositions. Outlines of literary history. Free library of French authors.

LATIN. 5 h. a wk. Grammar reviewed. Prosody. Considerable portions of Livy, Cicero, Pliny, Sallust, Vergil.

GREEK. 5 h. a wk. Grammar continued. Extracts from Homer, Herodotus, Xenophon, Lucian.

GERMAN OR ENGLISH. 2 h. a wk. All varieties of instruction. English texts — Vicar of Wakefield, Tales from Shakspere, Macaulay's History of England, Vol. I.

HISTORY. 2 h. a wk. History of Europe, and particularly of France, from 395 to 1270.

GEOGRAPHY. 1 h. a wk. Geography of Europe, physical, political, and economic. Geography of each state.

ARITHMETIC, ALGEBRA, AND GEOMETRY. 2 h. a wk. Arithmetic finished, including square root and proportions. First principles of algebra. Plane geometry finished through area of the circle.

PHYSICS. 2 h. a wk. ½ the yr. Gravity, properties of liquids and gases. Specific gravity. Barometer. Heat.

DRAWING. 2 h. a wk. Decorative figures. Caryatids. Friezes. Doric, Ionic, and Corinthian orders. The human figure, and figures of animals.

SECOND CLASS. Age 15 yrs.

FRENCH. 3 h. a wk. Selections from ten authors covering the sixteenth to the nineteenth centuries inclusive.

BOSTON PROGRAMME.

GEOGRAPHY. General reviews. Astronomical and physical phenomena. Political and commercial relations of different countries.

HISTORY. History of Greece, with historical geography.

ZOÖLOGY. Oral instruction, to begin March 1.

ALGEBRA. Including the generalizations of arithmetic.

MILITARY DRILL. 2 h. a wk.

THIRD CLASS (Latin School). Age 14 yrs.

ENGLISH. Not less than 3 h. a wk. Prose — Plutarch (Roman Lives), Addison's papers in the Spectator, one of Scott's novels; poetry — Macaulay's Lays, some of Tennyson's, Emerson's, and Wordsworth's poems. Abstracts, compositions, and translations from a foreign language.

LATIN. Æneid, Bks. II–IV. Sallust's Catiline. Easy passages from Cicero. Unprepared translation. Committing passages to memory. English into Latin.

GREEK. Forms. Translation of 25 pp. of the Anabasis. Unprepared translation. Greek from dictation. Vocabulary. English into Greek.

FRENCH OR GERMAN. Reading. Oral and written translation of modern prose. Dictation. Committing passages to memory. Vocabulary. English into French or German.

HISTORY. History of Rome, with historical geography.

BOTANY OR PHYSICS. To begin March 1.

ALGEBRA. Including the generalizations of, and applications to, arithmetic.

MILITARY DRILL. 2 h. a wk.

SECOND CLASS (Latin School). Age 15 yrs.

ENGLISH. One play of Shakspere. Part of the English required for admission to college. Recitation of prose and verse. Translations. Compositions.

FRENCH PROGRAMME.	BOSTON PROGRAMME.
LATIN. 4 h. a wk. Prosody. The meters of Horace. Authors — Vergil, Horace, Cicero, Livy, and Tacitus.	LATIN. Cicero, four orations. Vergil's Bucolics, and review of Æneid, Bks. I–IV. Translation at sight. Committing to memory. Vocabulary. English into Latin.
GREEK. 5 h. a wk. Grammar reviewed. Considerable portions of Homer, Euripides, Plato, Xenophon, and Plutarch.	GREEK. Anabasis, I–IV. Sight translations from Xenophon. Greek from dictation. Vocabulary. English into Greek.
LITERARY HISTORY. 1 h. a wk. is devoted to the history of Greek (10 lectures), Latin (10 lectures), and French (15 lectures) literatures. This hour is taken from the hours appropriated to the three languages.	
GERMAN OR ENGLISH. 2 h. a wk. Grammar reviewed. Reading, conversation, translation, composition. English texts — Julius Cæsar, The Deserted Village, The Traveler — a romance of Scott, A Christmas Carol, David Copperfield, extracts from English historians.	FRENCH OR GERMAN. As in previous year.
HISTORY. 2 h. a wk. History of Europe, and particularly of France, from 1270 to 1610.	HISTORY AND GEOGRAPHY. History and geography of Greece and Rome completed.
GEOGRAPHY. 1 h. a wk. Geography of Africa, Asia, Oceanica, and America. Meteorology. Climatology. Productions. Commercial relations. Steam and telegraph lines.	
ALGEBRA AND GEOMETRY. 2 h. a wk. Algebra completed through equations of the second degree. Solid geometry to the cone.	ALGEBRA. Through quadratic equations. Algebra and arithmetic reviewed.
PHYSICS. 2 h. a wk. ½ the yr. Electricity and magnetism. Acoustics.	GEOMETRY. Plane geometry begun.
DRAWING. 2 h. a wk. Same as in the preceding year.	BOTANY OR PHYSICS. To begin March 1.
	MILITARY DRILL. 2 h. a wk.
CLASS OF RHETORIC. Age 16 yrs.	FIRST CLASS (Latin School). Age 16 yrs.
FRENCH. 4 h. a wk. Eleven authors of seventeen, eighteen, and nineteen centuries. Fifteen lessons on the history of French literature from the time of Louis XIII.	ENGLISH. The English required for admission to college. Recitation of prose and poetry. Translations and compositions.
LATIN. 4 h. a wk. Portions of Terence, Lucretius, Vergil, Horace, Cicero, Livy, and Tacitus.	LATIN. Æneid, Bks. V–IX. Cicero, three orations. Translation at sight. Methods as in previous year.
GREEK. 4 h. a wk. Portions of Homer, Sophocles, Aristophanes, Plato, and Demosthenes.	GREEK. Selections from Herodotus. Translation at sight. Iliad, Bks. I–III, with prosody. Greek composition.
GERMAN OR ENGLISH. 2 h. a wk. Authors in English — Shakspere, Washington Irving, Byron, Tennyson, Dickens, and George Eliot.	FRENCH OR GERMAN. Prepared and sight translation from one or more French or German classics. Reading a history of France or Germany. Other methods as in previous years.
HISTORY. 2 h. a wk. History of Europe, and particularly of France, from 1610 to 1789.	
GEOGRAPHY. 1 h. a wk. Physical, political, administrative, and economic geography of France and its colonies.	
GEOMETRY AND COSMOGRAPHY. 2 h. a wk. Solid geometry finished — through the sphere. The celestial sphere. Earth, sun, time, moon, eclipses, planets, stars, universal gravitation, tides.	GEOMETRY. Plane geometry completed.
	MILITARY DRILL. 2 h. a wk.

FRENCH PROGRAMME.

BOSTON PROGRAMME.

CHEMISTRY. 2 h. a wk. first ½ yr. Hydrogen, oxygen, nitrogen, chlorine, sulphur, phosphorus, carbon, silicon, and their most important combinations. General notions of the metals, oxides, and salts. Principal organic compounds. Nomenclature and notation.

DRAWING. The human head from nature. Landscape from prints and nature.

CLASS OF PHILOSOPHY. Age 17 yrs.

[*There is no equivalent in the Boston programme for the Class of Philosophy in the French programme.*]

PSYCHOLOGY, LOGIC, ETHICS, AND METAPHYSICS. 9 h. a wk., of which 8 h. are for the general course and two French authors, and 1 h. for one Latin and one Greek author. The two French authors are chosen each year from a list containing works of Descartes, Malebranche, Pascal, Leibnitz, Condillac, and Cousin. The course includes an account of sensibility, intelligence, and volition, of formal and applied logic, of conscience and duty, of family and country, of political duties, of labor, capital, and property, of immortality and natural religion.

HISTORY. 2 h. a wk. Contemporary history, 1789 to 1875.

ARITHMETIC, ALGEBRA, AND GEOMETRY. 4 h. a wk. Review of the whole course in these subjects.

PHYSICS. 2 h. a wk. Optics. Applications of physics — steam-engines, magneto-electric machines, electro-plating, telephone.

PHYSIOLOGY, ANIMAL AND VEGETABLE. 2 h. a wk. Nutrition, organs of sense, voice, apparatus for movement, nerves. Vegetable nutrition and reproduction.

DRAWING. 2 h. a wk. Same as in the preceding year.

AN AVERAGE MASSACHUSETTS GRAMMAR SCHOOL

ADDRESS

At the Massachusetts Teachers' Association, November 28, 1890

AN AVERAGE MASSACHUSETTS GRAMMAR SCHOOL

I AM going to be rash enough to talk to an audience intimately acquainted with the Massachusetts grammar schools, about the actual work accomplished in that kind of school, although I have not, myself, a thorough acquaintance with that work based on long observation and experience. I am distinctly an outsider in regard to the grammar-school system of Massachusetts. I was never either a pupil or a teacher in a grammar school, and I have paid but few visits to schools of that grade. I must confess, at the start, that I am something worse than a mere outsider. I am an outsider with a grievance; and I have observed, in regard to critics of university methods, that an outsider with a grievance is an awkward kind of critic to deal with. At any rate, the fact that the outside critic has a grievance is something that he should reveal at the very outset of his criticism. My grievance is that the American boy comes to college at an average age of nineteen, knowing very much less

than he ought to know, and very much less than boys of that age do know in other countries, such as Scandinavia, Germany, France, and England. For some years I have been searching for the cause of that inferiority of the American boy. I cannot believe that it is in the stock, or in the climate; and I am sure that it is not to be found in the nature of our political institutions. Two years ago I made a careful examination of the courses of study, or programmes, of the best high schools and academies in this country; and although I succeeded in finding some places where the programmes might be condensed and enriched, yet I was satisfied that the main sources of the evil I had in mind were not in those programmes. Lately I have been inquiring into the courses of study in primary and grammar schools, but always with this thought in my mind: Can I find some leak, some waste of time, or some misdirected labor, on the part of pupil or teacher? Can I find in either sort of school the promising place at which remedies for the confessed inferiority of our boys at nineteen should be applied?

When we try to examine the grammar-school system in the United States, the first thing we want to know is what is really done in an average grammar school. Now, that is more than anybody can find out in this country. I have tried faithfully to learn what is accomplished by a boy or girl in a fair sample of the American grammar school, and the main result of my labors is the assurance that nobody can ascertain what that fair

accomplishment is. I defy anybody to ascertain what it is. There are many causes for this condition of things. In the first place, we have no elaborate system of national or State superintendence, and no permanent bodies of experienced inspectors. Public education is organized by municipalities and towns, and these municipalities and towns conduct their affairs quite separately, and with very little coöperation or coördination. There is, therefore, no widely accepted standard for grammar schools. But, again, in the grammar schools of a single municipality, great diversities are apt to exist. The amount of work accomplished in one grammar school is often very different from the amount of work accomplished in another grammar school within a quarter of a mile. Thus, the grammar schools of the city of Boston vary greatly, not only in regard to the amount of work done by the pupils, but to the methods of the teachers and the aims of the principals. Often in a single city, therefore, it is almost impossible to ascertain what the average work is in an average grammar school. Still further, the rural schools present an extraordinary variety of conditions and results.

My subject, therefore, is an extremely difficult one. I have to confess, at the start, that I cannot tell you what the actual work of an average Massachusetts grammar school is. My only resource is to take a particular grammar school in a city — not one of the largest cities, nor yet one of the smallest; not the best school in the city, nor yet the worst; a school with a good principal, a fair

set of teachers, and a mixed set of pupils — mixed as regards nationality, religion, and social condition. The actual work of that one school I think I have got a fair idea of; yet I do not pretend to be able to state it with any precision, for the reason — and this is a reason which applies to the larger number of our grammar schools throughout the State and the country — that the work in the different rooms of that school differs considerably in the same grade. This difference is attributable to the difference in the teachers. One teacher is much more alert and stimulating than another, and therefore accomplishes more with her pupils. In spite of these difficulties, I have found the examination of the actual work done in this tolerably representative school to be full of suggestions. Let me deal first with the question of school-time.

In this rather small city, which possesses only a moderate number of grammar schools, the school-time is four and a half hours a day for five days in the week; namely, from 9 to 11:30 A. M. and from 2 to 4 P. M., with no session on Saturday. During the darkest part of the year the afternoon session is from 1:30 to 3:30. My first criticism is that this school-time is too short. Within that short limit of weekly time we cannot accomplish what it is reasonable to expect to accomplish with children from nine to fifteen years of age. Foreign schools have more time, and this is one of the reasons why they accomplish more. I believe that it has been a mistake to give up the whole of the Saturday session, and that we had better return to the method

of our forefathers, namely, to half-sessions on Wednesdays and Saturdays. I think we ought to hold school on the four full days of the week five hours a day, and on each of the two half-days of the week three hours a day, making twenty-six hours instead of twenty-two and a half. That gain, when multiplied by the number of weeks in the school year, would be important.

I must also express the conviction that the children cannot afford to have so large a proportion of vacation in the year as is now given them, particularly in cities where the great majority of children are unable to leave town, and have no adequate occupation for the summer vacation of two months or more. The teachers need the vacation, but the pupils do not. Indeed, most of them are harmed or suffer loss by it. Summer half-time schools would increase somewhat the total cost of urban schools; but the proportional value received for that expenditure would be a large one, both for parents and for children.

When we ask for more time for schools, we are always met by this objection: The children can hardly stand the stress to which they are now subjected. Are we to overtax them still more? I believe there are three good answers to this objection. The first is ventilation. If you will take the excess of carbonic acid out of the school-room, you can keep the children in it longer, without hurting them as much as you do now. The same may be said of the teachers. The strain upon teachers is greatly increased by the badness of the

air in which they habitually work. Secondly, the stress upon the children can be greatly diminished by the systematic use of gymnastic movements during school hours and in the school-rooms. I submit that the American people ought to learn from the experience of European nations in this respect. It has been conclusively demonstrated that brief intervals for gymnastic exercises throughout the public schools of Scandinavia and Germany do keep the children in good condition, and do enable them to sustain without injury a greater amount of mental work than I have just suggested for American children. Thirdly, the stress or strain upon children can be much diminished by making the work interesting to them, instead of dull, as much of it now is. It is extraordinary how fatigue is prevented or diminished by mental interest. As I have lately read the readers used in my sample grammar school, worked its sums, and read its geography and its book on manners, it has seemed to me that the main characteristic of the instruction, as developed through those books,— unless lightened by the personality of the teacher,— is dullness, a complete lack of human interest, and a consequent lack in the child of the sense of increasing power. Nothing is so fatiguing as dull, hopeless effort, with the feeling that, do one's best, one cannot succeed. That is the condition of too many children in American schools — not the condition for half an hour, but the chronic condition day after day and month after month. Make the work interesting, and give the children

the sense of success, and the stress which is now felt by them will be greatly diminished.

I turned next to an examination of the quantity of work done in the grammar school under consideration— and, first, of the amount of reading. The amount of time given to reading and the study of the English language through the spelling-book and the little grammar which are used in that school, and through a variety of other aids to the learning of English, is thirty-seven per cent. of all school-time during six years. But what is the amount of reading in this time? I procured two careful estimates of the time it would take a graduate of a high school to read aloud consecutively all the books which are read in this school during six years, including the history, the reading lessons in geography, and the book on manners. The estimates were made by two persons reading aloud at a moderate rate, and reading everything that the children in most of the rooms of that school have been supposed to read during their entire course of six years. The time occupied in doing this reading was forty-six hours. These children had, therefore, been more than two solid years of school-time in going through what an ordinary high-school graduate can read aloud in forty-six hours. I will mention one detail of this examination which seemed to me suggestive. It took one and a half hours to read aloud the whole of one of the earlier readers. I counted the words in that reader, and found that the number of words was about equal to the number of words on three pages

of an ordinary Sunday newspaper, or on four and a half pages of a better-printed paper. The actual number of words learned during six years is small, and the amount of ground covered in literature is also small. How small an acquaintance adults would make with English literature if their reading during six years were limited in amount to the quantity they could read aloud in forty-six hours, or one minute and fifteen seconds a day! This test of the quantity of work performed in a grammar school is, of course, a very rough and inadequate one. It does not represent at all the labor of the childish mind; it does not represent the labor of the teacher; but it gives some clue to the very limited acquaintance with literature which the children get in the entire course of six years.

Arithmetic is the subject mainly relied on in the American school course for the training of what is called the reasoning power; at least, one finds little else in the whole course of grammar-school study which has any specific tendency to develop the reasoning power. It is, however, a very peculiar kind of reasoning which is used in mathematics, a kind we seldom use in the actual world, and which is of no use whatever in the moral sciences. The mathematics deal with certainties and demonstrations—things with which common life has very little to do. The time devoted to arithmetic in my sample grammar school is nearly twenty-one per cent. of the whole school-time during six years. I leave it to others to consider whether twenty-one per cent. be too much or too little. As a fact, more

than one fifth of the whole time of the children for six years is given to arithmetic. During the first two years of the course the children went through eighty-eight pages of the excellent arithmetic which was in use, and they did all the sums on these pages. There were also in the book certain tables for the purpose of drill, and collections of examples in great variety, which were used at pleasure by the teacher; but the children only did a few of these additional examples. Those I omitted from the following estimate. It took a high-school graduate fifteen hours to do all the sums on those eighty-eight pages which the children did in two years, giving one fifth of their time in each year, after having studied arithmetic in the primary classes. My high-school graduate wrote everything out in full, did all the work, and got the answer to every sum in fifteen hours. Again, this is by no means a test of the amount of work that the children did, or of the work that the teachers did. It only gives us a glimpse of the very small arithmetical accomplishment by those children who had been three years in a primary school and two years in a grammar school, and who, in the grammar school, had given one fifth of their entire time to that subject.

As to the other studies of the school, I will barely mention that ten per cent. of the time for six years was given to geography; that another ten per cent. was given to drawing, sewing, and music; and that the small balance remaining was divided among writing, history, and bookkeeping, lessons

on patriotism, morals, manners, physiology and hygiene, physical exercises, and the introductory morning exercises.

I come next to the objects sought in the selection of subjects of study. With the exception of arithmetic, all the subjects taught in my sample grammar school cultivated chiefly the memory. More than two thirds of all the time was given to the cultivation of the memory. It may be doubted what power the study of mathematics really cultivates. I remember to have done a great deal of mathematical work when I was at school by memory solely, without any real understanding of the work. For example, until I got to algebra I never had the faintest idea about the reason underlying the process of obtaining the greatest common divisor or the least common multiple; but I could do all the sums on those subjects, because I followed accurately a rule or method which I remembered correctly. We must not assume that the study of arithmetic in the grammar school trains much besides the memory. The training of the observational faculties is completely disregarded. A child in this school gets no training at all in correct observation. There is one subject taught in this school which is admirably adapted for the training of the observational faculties, namely, geography; but it is taught solely as a matter of memory. There is not a photograph or a raised map in the school. There is nothing whatever with which to teach geography as a science of observation. Properly taught, geography is one of the most profitable

subjects for school use; but taught as a memory study it is one of the most unprofitable. It is perhaps convenient for a Massachusetts child to know the name of the capital of the commonwealth. I think, however, that most children discover that fact without school aid. It is entirely unimportant that children know the names of the capitals of all the States of this Union, for most of those capitals are unimportant places. It is entirely useless to teach children elaborately the boundaries of the States of this Union. There is no mental training in such acquisitions, and no profit of any sort. It is doubtful if there be many persons in this hall, except professional teachers, who have that knowledge to-day. I am sure I have not. There is a dangerous theory in education, that it is worth while to learn many things in youth which are to be forgotten in adult age. This theory is dangerous because there is an element of truth in it. The element of truth is that it is worth while to learn in youth things through which we acquire a power which lasts, though the things themselves be forgotten. On the other hand, to teach a variety of little things to children, which they are sure to forget before they have grown up, and which afford no substantial mental training, is a waste of time. Besides geography, the following subjects—history, physiology and hygiene, patriotism, morals, and manners—are all taught as memory subjects in my sample school.

There was another chance for a bit of observational study in the same sample grammar school. It was

in connection with the study of physiology, anatomy, and hygiene. I imagined that there might be a skeleton in that school, or a manikin, or a model of the brain, stomach, lungs, eye, ear, hand, or arm, and that the children might be shown some of these beautiful organs. But no; there was nothing of the sort in the school-house, and there never had been. Everything concerning that natural-history subject was taught out of a little book; the children had nothing but flat figures of the things described, and were required to make them stand for the various members of the human body. Here was a bit of science used wrongly, and used in a way which all scientific men would deplore. The mere memorizing of scientific facts is not as useful to children as the memorizing of grammar, even of English grammar, and it is not to be compared for a moment, as a means of mental training, with memorizing Latin grammar. Observational teaching of the human body is, of course, a fascinating and profitable study for children, just as observational teaching in geography makes that subject one of the most charming in the world whether for children or adults. Until we can get the means of teaching scientific subjects properly, let us not teach them at all. I regretted to observe, also, in this same little book, examples of the worst possible method in science teaching. At the end of each chapter there were some remarks on the effect of alcohol on the stomach, brain, and almost every other part of the body. These remarks were obviously intended to have on the childish mind some

warning effect against the use of alcohol. Some of them were clearly false, others absurd; most of them were entirely unproved as yet by science, and many of them will probably remain unprovable for centuries. No worse example of the perversion of science in teaching can be imagined than the authoritative assertion of such unproved, and, for the most part, unprovable, propositions. Teachers and pupils alike know perfectly well that the book is trying to impose on them. The method is thoroughly immoral.

I found my sample grammar school very interesting from another point of view. It was not one of those unfortunate schools in which fifty-six pupils are assigned to one teacher. The number of pupils to a teacher was less than fifty-six, though still too large. Since there were pupils in that school of various nationalities, religions, and conditions in life, every set of pupils of the same grade assembled in one room contained a large variety of individuals of different powers and capacities; yet they all had to be treated in precisely the same way, except as the ingenuity of the teacher might discover means of escape from this disastrous uniformity. There were children who could do the set tasks in arithmetic in fifteen minutes, and other children who could not do them in fifty-five minutes; and there were all varieties between these limits. I suppose the worst feature of the American school is this grouping together of children whose capacities are widely different. I am told that this evil is not so generally left without rem-

edy in the Western schools as it is in the Eastern; but I have had no particular observation of Western grammar schools. In my sample grammar school there was no official, public, regulation remedy for this most serious condition of things. What was the unofficial private remedy provided by the ingenious teacher? Simply that when a bright pupil could get through in fifteen minutes what the programme allotted fifty minutes to, the teacher endeavored to give that child something else to do — a book to read, other examples to solve, or pictures to look at; but she had so many children before her that she could not possibly deal with all of them in that way. This is the daily commonplace evil which exists in every grammar-school room, I suppose, in Massachusetts. What is the remedy? No remedy seems to be possible except grading by proficiency and capacity. I know that this is a remedy which the average school committee dislikes. We cling very hard to the delusion that, after all, men and women may be pretty nearly equal. We are flying in the face of nature when we conduct our schools on such a theory. We must learn, on the contrary, that the only possible equality among men is equality before the law. If we are to have good schools, we must remember that children are individually very diverse, and that the community suffers much loss when the quick children are made to keep pace with the slow. Not only the children themselves suffer loss, but the community to which they belong loses heavily and incessantly. We ought to seek a regulation remedy for this state of

things, not leaving it to the good feeling and ingenuity of the individual teacher. Through this grading by proficiency quite as much good would be done to the slower pupils as to the quicker. There is nothing more depressing, and, on the whole, degrading, than a hopeless contest; than the sense of remaining, day after day and year after year, a dunce, without expectation of promotion, and without gain in mental power. We must not imagine, therefore, that in attempting to further the interests of the superior children we should fail to further the interests of the inferior. We should do both these good things simultaneously. Here is the main ground for the hope I feel for the future of the grammar school. I believe that through this method of grading by proficiency and capacity it can be lifted, its work greatly improved, and the benefit it confers upon the community substantially increased. The method would not be a new thing. It formerly existed in our public schools to a greater extent than it does now, yet the need of it now is much greater than it was earlier, since our population has become very much more heterogeneous than it was forty years ago.

I have already said enough, I think, to open the subject which the Association assigned to me. Let me recapitulate the points which I have touched — that we need more school-time in the year; that to get this safely we must have better ventilation, more gymnastics, and more interesting instruction; that the actual amount of work accomplished should be carefully considered on a large scale — not in a

single school, as I have done, but in many schools, by many teachers and many superintendents, to see if the present low limits of actual attainment cannot be enlarged; that the selection of subjects requires reconsideration; and, lastly, that the grading of pupils should be by proficiency.

If we could bring children through our grammar-school system and get them ready for the high school at thirteen or fourteen years of age, the difficulty which originally drew my attention to the school programmes — namely, that the graduates of universities enter life too late — would begin to be remedied, and thousands of children who never go beyond the grammar school would be greatly benefited. I must again apologize to you for intruding upon a field where you have much fuller opportunities for observation and greater familiarity with details than I have. I know that in the conduct of college and university affairs the observations of an outsider are sometimes useful. He may see something which the men who are fully absorbed in college or university work have not seen. I have a faint hope that possibly I may have attracted your attention to some points in the grammar-school system at which improvement is possible. I know it is wholly for you to make useful application of any hints I may have been fortunate enough to give.

THE GAP BETWEEN COMMON SCHOOLS AND COLLEGES

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THE GAP BETWEEN COMMON SCHOOLS AND COLLEGES

IN July last, Professor Canfield of the University of Kansas read before the National Council of Education a well-considered report on secondary education in the United States. This valuable paper gives a clear picture of the undeveloped condition of secondary education throughout the country, and demonstrates that just there lies the weakest part of our educational system. No State in the American Union possesses anything which can be properly called a system of secondary education. The elementary or common-school system, in both city and country, is tolerably organized in many States; but between the elementary schools and the colleges is a wide gap very imperfectly bridged by a few public high schools, endowed academies, college preparatory departments, and private schools, which conform to no common standards and are under no unifying control. The masses of the rural population — that is to say, three quarters of the American people — are un-

provided with secondary schools. The town and city high schools are, on the one hand, independent of each other and of any superior educational authority; and, on the other, are entirely in the power of local committees or boards which can but rarely look beyond the immediate interests of the particular region which supports each school. Many States have adopted permissive legislation with regard to the maintenance of high schools; but for the most part this legislation has produced scanty fruits. Only one State in the Union — Massachusetts — has mandatory legislation on this subject; but in that State a large proportion of the two hundred and thirty so-called high schools are not secondary schools in any proper sense. Because of the lack of secondary schools competent to prepare their pupils for college, five sixths of the colleges and universities in the United States maintain preparatory departments against their will, and in disregard of the interests of the higher instruction.

One would infer from Professor Canfield's report that with regard to secondary education the condition of things in Massachusetts — a little State in which sixty per cent. of the population may fairly be called urban — is better than anywhere else in the United States. Perhaps it is; but how wide the gap is between the common schools in Massachusetts and her colleges may be inferred from a few facts about the supply of students to Harvard College. Only nine Massachusetts high schools (out of two hundred and thirty) send pupils to

Harvard College every year. In 1889, out of three hundred and fifty-two persons who were admitted to Harvard College as candidates for the degree of Bachelor of Arts, ninety-seven (or twenty-seven and one half per cent.) were prepared at free public schools; but these schools numbered only thirty, and all New England furnished but twenty-three of them. The plain fact in Massachusetts is that not one tenth of the schools called high habitually maintain a course of study which enables the pupil to prepare himself for admission to Harvard College, or to any other college in the State which enforces its requirements for admission as stated in its catalogue.

If this is the condition of things in what may be called an urban State, what must it be in a rural one? Imagine a patriot compelled to choose between two alternatives — one, that the less intelligent half of his countrymen should be completely illiterate; the other, that half of the children capable of receiving the highest instruction should be cut off from that instruction. Which would he choose? He would find the decision a difficult one; for either alternative would inflict an incalculable loss upon his country. Yet, in the present condition of secondary education, one half of the most capable children in the United States, at a moderate estimate, have no open road to colleges and universities.

To discover and to apply the remedies for the present defective, disjointed, and heterogeneous condition of secondary education is the problem

now most worthy of the attention of American educationists; but while seeking remedies they must use palliatives. Recognizing the plain fact of to-day — that secondary schools are insufficient in number and defective in quality — what can colleges do, under these adverse circumstances, to make themselves as useful as possible to the population, while awaiting a better organization of secondary education? Is it not their plain duty to maintain two schedules of requirements, one for the degree of Bachelor of Arts, the other for the degree of Bachelor of Science or Philosophy, the latter demanding much less preparatory study than the former? American colleges have been severely criticized for receiving students whose preparation was confessedly inferior to that required of candidates for the degree of Bachelor of Arts; but even the oldest and strongest of them have done this, and they have done it from a genuine desire to be serviceable to as large a proportion as possible of American youth. One lower grade of admission examinations, leading to a distinct degree, is an expedient concession to the feeble condition of secondary education throughout the country. That grade of secondary schools which cannot prepare pupils for the Bachelor of Arts course, but can prepare them for the Bachelor of Science course, is thus brought into serviceable connection with the colleges.

The same may be said of the slight and elementary examinations on which many universities admit to their professional schools. It is much to

be regretted that, concerning the great majority of lawyers and physicians, the community has no security that they are men of any general cultivation or liberal training; but the fault or defect is at the secondary-school stage. The universities palliate the acknowledged evil by admitting to a professional training, which is in itself a strenuous education, men whose defective earlier education can never — except in rarest instances — be made good.

Another expedient measure for keeping colleges in touch with that large proportion of the American population which has no access to systematic secondary instruction is the admission to college, without any comprehensive examination, of persons who prove themselves able to pursue special subjects which are taught in college but not elsewhere, and who without expectation of any degree are willing to submit to all college tests of their industry and capacity. This measure was adopted at Harvard College so long ago as 1826, and was in force till 1848, when it was temporarily abandoned, to be taken up again in 1873. It is an arrangement liable to abuse, and likely, if not vigilantly watched, to impair the discipline of secondary schools; but through it a considerable number of worthy and able young men, who would otherwise be cut off, get access to the institutions of higher education — to their great advantage and the benefit of the community.

There are those who think that some colleges have gone unnecessarily far in offering different

courses with diminishing requirements for admission and different degrees. Such colleges seem to say: If a candidate cannot get into our classical course, perhaps he can enter the literary course; if not the literary, then the scientific; if not the scientific, at any rate the agricultural. The value of all degrees seems to be threatened by this unnecessary multiplicity of titles and conditions; and the standards of good secondary schools must needs be unfavorably affected by a long sliding scale of requirements for admission to the several courses offered by a single institution.

The consideration of the palliatives which colleges may resort to in the present feeble and distracted condition of secondary education is, however, much less attractive than the study of the remedies for existing evils and defects.

To improve secondary education in the United States, two things are necessary: (1) more schools are needed; (2) the existing schools need to be brought to common and higher standards, so that the colleges may find in the school courses a firm, broad, and reasonably homogeneous foundation for their higher work.

(1) *More schools.* Secondary schools are either day-schools or boarding-schools, the urban school being primarily a day-school, and the rural a boarding-school. The public secondary school is now urban almost exclusively, and it must be admitted that it is likely to continue so; for no promising suggestion has as yet been made for a rural area

of support for a highly organized secondary school. It is admitted that neither a rural township nor a union of contiguous rural districts can ordinarily support such a school. The county has been suggested as a possible area of support; but there is no sufficient evidence that a rural county, apart from its town or towns of dense population, can support a good high school. To increase the present number of secondary schools which can really fit pupils for college, what are the most hopeful lines of action? In the first place, every effort should be made by school authorities, the press, and other leaders of public opinion, to promote the establishment of secondary urban day-schools, both public and private, and to adapt the programmes of existing schools to the admission requirements of some college course which leads to a degree. It is noticeable that, in the older cities, and to some extent in the younger ones also, the best private schools exist right beside the best public schools. The causes which produce one class of schools tend to produce the other. Secondly, rural communities ought to be authorized by suitable legislation to contribute to the establishment (including the provision of buildings) and annual support of urban secondary schools which are conveniently situated for their use. Thirdly, there should be authorized by law special secondary-school districts, much larger than the areas which support primary and grammar schools, and constructed with reference to railroad communications. It may be much easier for a boy or girl to go to school fifteen miles by rail

than to walk to school in all weathers two miles by country lanes. The rural population has something to hope from legislative recognition of railways as chief features in secondary-school districts. The Massachusetts normal schools illustrate this principle; for in reality they are slightly modified high schools, partly boarding-schools and partly local and railroad day-schools. Fourthly, every effort should be made to stimulate private benevolence to endow rural secondary boarding-schools or academies, under corporate management. A boarding-school ought always to be in the country; and a rural secondary school would almost necessarily be, in part at least, a boarding-school.

(2) *Common standards.* The existing means of elevating and regulating secondary-school instruction may be conveniently considered under two heads — (*a*) State aid and supervision, and (*b*) college admission requirements. Both agencies are already useful, but both may be greatly improved and extended.

(*a*) *State aid and supervision.* It seems to have been the object of high-school legislation in some States, as, for example, in Massachusetts and in Maine, to encourage the creation of a large number of low-grade high schools without really expecting them to effect any junction with colleges. Such at any rate has been the effect of the mandatory legislation of Massachusetts, and such must be the general result of the aid offered to free high schools by Maine. That unprosperous State now offers to give any free high school as much money

per year as its supporting area annually appropriates for instruction in the school, provided the State grant shall not exceed $250 in any case. No inspection or examination of aided schools is provided for. Such legislation encourages the establishment of numerous weak schools, without helping appreciably the schools already strong.

Much wiser is the legislation of Minnesota, which established twelve years ago a State High-School Board, and offered $400 a year to any high school which was found by the Board after competent inspection to fulfil the following conditions: the aided school must receive both sexes free, and non-resident pupils also without fees, provided such pupils can pass examinations in all common-school subjects below algebra and geometry, and must maintain "regular and orderly courses of study, embracing all the branches prescribed as prerequisite for admission to the collegiate department of the University of Minnesota not lower than the sub-Freshman class." The Board may appoint any competent persons to visit the high schools and may pay them, but not more than three dollars a day. Not more than five schools can be aided in any one county, and any school once accepted by the Board and continuing to comply with all the regulations must be aided for not less than three years. The State appropriated in 1878 only $9000 for the use of the Board; but this amount was raised the next year to $20,000, and in 1883 to $23,000. The Board consists of the Governor, the State Superintendent of public in-

struction, and the President of the University of Minnesota. By careful inspections the Board has classified the high schools of the State, the nine high schools of the first rank preparing pupils for the Freshman class of the University. This high-school legislation seems the wisest which has been adopted in the United States. It encourages no schools but those which are already fairly well organized; insists that aided schools shall connect directly with a university; avoids expensive examinations; provides a reasonable amount of inspection; grades schools by their programmes and general efficiency, not by individual examination results; gives no pecuniary advantage to a large school over one equally well conducted but smaller; requires aided schools to take non-resident pupils without charge; and applies almost the whole of the State's grant to the direct development of instruction — always the most productive application of money intended to benefit schools or colleges. Minnesota is a new and sparsely settled State, and its High-School Board acts as yet upon a modest scale; but the principles of its high-school legislation may be advantageously copied in any State of the Union, however old, or rich, or densely populated.

The State of New York furnishes the country with an excellent opportunity of studying another method of improving secondary education through State aid and supervision. This State, in 1784, created on paper an ample framework called the University of the State of New York, which was

to include all the academic and collegiate institutions of the State. It must be confessed that neither the State of New York nor the country at large has, until recently, taken this institution seriously; partly because it has not been a teaching body, and partly, perhaps, because a position on the Board of Regents has seemed to be regarded as an honorary distinction suitable for State officials, politicians more or less retired, orators, editors, lawyers, and men of wealth and leisure, rather than as an appointment appropriate for professional educationists. Indeed, the fundamental law concerning the University expressly provides that no officer of any institution belonging to the University shall be at the same time a Regent; so that almost all persons professionally concerned with education in the State are excluded from the Board. Nevertheless, in spite of such mild criticism of the University as the words "legal fiction" and "myth" convey, the Board of Regents has really exercised for many years considerable powers, and has set agencies at work which now have a strong effect upon secondary education throughout the State. The institution, in 1863, of the annual University Convocation has added greatly to the influence and usefulness of the Board, and furnishes a striking illustration of the great good which can be done by bringing school and college men together under favorable conditions for discussion and consultation. The largest and most important function of the Board is that of conducting examinations at the academies and high

schools of the State in all the subjects taught in those schools, and of issuing to the persons who pass the examinations certificates and diplomas which are good for their face at the New York colleges. The examination results also serve as the basis for the annual distribution of $100,000 of public money among the academies and high schools of the State. The methods, therefore, combine State aid with State supervision; but this supervision is chiefly exercised, not by visits of inspection to the schools, but by uniform and simultaneous written examinations in subjects taught in the schools.

It is unquestionable that the Regents' examinations have tended to raise the average standard of instruction in the academies and high schools, to extend and improve school programmes, to bring schools and colleges together by doing away with useless diversities of programme in secondary schools and useless diversities of admission requirements in colleges, and to stimulate some of the communities which maintain these schools to give them better support and to take a pride in improving them. These are great services which deserve the respectful attention of the other States of the Union, and of all persons interested in the creation of an American system of secondary education. The Regents have proved that a State examining board can exercise a stimulating, elevating, and unifying influence upon hundreds of institutions of secondary education scattered over a large State, and can wield that power through ma-

chinery which, considering the scale of operations, may fairly be called simple and inexpensive. The system is so interesting and suggestive that even its defects should be carefully studied.

The most obvious criticism of the Regents' methods touches the preparation of the question papers in the forty subjects of examination. The examination papers of the Board do not proceed from a body of men of recognized authority in teaching, and they are not prepared by specialists in each subject. It is understood that one or two persons write all the papers. The Regents' mode of providing examination papers differs widely from the method employed at Harvard College in preparing papers for the admission examinations. At Harvard, each paper is first written by an expert in its subject; next, it is criticized by all the teachers of the department to which the subject belongs, as, for example, by all the teachers in Latin, or Greek, or mathematics; and, lastly, it must be approved by a committee in which all the departments concerned with the admission examinations are represented. With all this care serious mistakes of judgment are from time to time committed. The Regents' method seems too uniform and unguarded, and it can hardly carry the desirable weight of authority.

The next criticism might well be directed to the mode of conducting the examinations. So long as they are conducted at the academies and by the principals or their deputies without supervision by any agent of the Regents, they cannot command

that confidence which independent examinations conducted by agents of the Regents would command. If the cost of conducting independent examinations be a serious difficulty,— which one can hardly suppose,— it may be suggested that one examination a year perfectly conducted would serve the interests of the schools and colleges better than the existing three conducted in the present manner. Indeed, a reduction in the number of examination periods seems desirable for many cogent reasons. The integrity of the examinations is of paramount importance; no other consideration, like those of economy, rapidity, or convenience, is of the same order. The Regents' annual reports indicate unmistakably that the marking of the answer papers should be done exclusively by the Regents' examiners. The average percentage of disallowed claims for preliminary certificates in the nineteen years from 1869 to 1888 was fifteen and one-half per cent., showing that the principals and the examiners differed in more than one case out of seven in these elementary subjects. For intermediate and language subjects, and for the optional groups, similar divergencies appear between the verdicts of principals and those of examiners; but the difference between different institutions is so great in this respect, and the total numbers are so moderate, that averages are not very instructive. For the honesty of the examinations the Regents depend on a solemn asseveration made at the end of every answer paper by every person under examination, and on a very

comprehensive affidavit made by the principal. These means seem insufficient and, on the whole, unjustifiable. They are distasteful and unnecessary for honorable persons, ineffective for the dishonorable, and entrapping for the thoughtless.

Another criticism might be directed against the quality of the Regents' examiners. Ten persons, four men and six women, are employed chiefly upon the academic examinations, and their average salary is $1000, only two receiving more than $900. All these are doubtless excellent servants of the Board; but in addition to this anonymous force, a scholar and teacher of recognized position, a college professor if possible, should be employed to supervise the judging of answer papers in each of the principal subjects—mathematics, classics, modern languages, English, natural sciences, and so forth—and be responsible toward the public for the accuracy and fairness of the work. These places should not be sinecures, but well-paid and laborious posts. The incumbents would not only give dignity and authority to the examinations, but they would guard the system against the chief danger which besets examinations conducted by persons who are not teachers, namely, that the examinations will not keep pace with the incessant improvements in teaching. Signs are not wanting that the Regents' system needs defense against this danger. For example, the last syllabus still prescribes for the examinations in Latin and Greek certain specified amounts of Cæsar, Virgil, Sallust, Cicero, Xenophon, and Homer, and the latest examination

papers present passages selected exclusively from these prescribed quantities; whereas the best opinion among accomplished classical teachers has for some years been that reading at sight is the most satisfactory test of a pupil's acquired power over Latin and Greek, and that classical teachers in secondary schools can be kept fresh and vigorous only by giving them that variety and liberty in their teaching which the at-sight test permits. How can a teacher retain any clear reasoning powers, if he is compelled to read every year with his class the Catiline orations, those models of specious and inflated rhetoric?

If it is easy to point out some defects in the academic examinations of the University of the State of New York, it is much more important to call attention to the services which the Regents have rendered, and can hereafter render, to the cause of education. If they develop a wise system of control over secondary schools, by examinations alone, or, better, by a combination of examinations with inspection,— a method which they are quite at liberty to adopt, and indeed have already adopted in a limited way,—their example will be efficacious with other States. If they succeed in effecting a close contact between secondary schools and colleges, their success will be a beacon-light for the whole country.

(*b*) *College admission requirements.* College requirements for admission act effectively on those secondary schools only which prepare some of their pupils for college; upon that large proportion of

high schools and academies which do not, they have only an indirect, although a sensible, effect. For the broad purposes of the State, the influence of colleges, even if they were associated together, could not be so immediate and potent as the influence of the State, whether the latter were exerted by inspection or by examination. It is in a narrower field, therefore, that the higher institutions of education can act on the lower. At present they act in three ways.

The feeblest way is by prescribing for admission a knowledge of certain books, or of certain well-defined subjects, and then admitting candidates on the certificate of any schoolmaster that they have gone over all the prescribed books or subjects. If the prescriptions of the college are judicious, they are not without some favorable effect on the curricula of the certifying schools; but it may be reasonably objected to this method that it gives the college inadequate protection against incompetent students, and the public no means of forming a just estimate of different schools. Certificates are apt to be accepted from good and bad schools alike, the anxiety to secure students in a struggling college overriding every other consideration. Particularly is this apt to be the case in a small college in which the president has succeeded in getting the subject of admissions out of the hands of the faculty and into his own. Under this system a really good school has no means of proving itself good, and a bad school is not promptly exposed. Within a few years this feeblest of all methods has come into use,

without any safeguards whatever, in the large majority of New England colleges, no system of State inspection or examination existing there, no pretense being made that the certifying schools are examined, or even occasionally visited, by the colleges. A more demoralizing method of establishing a close connection between secondary schools and colleges it would be hard to imagine. Nevertheless, even under this loose and unguarded method, which only the two largest New England colleges and sturdy little Bowdoin have completely resisted, some good has resulted from coöperative action between preparatory schools and colleges to make admission requirements, on paper at least, uniform for the same subjects. The uniform requirements in English, which prevail all over New England except at Yale University, and have lately been adopted by some institutions in the Middle States, supply a noteworthy case in point.

The method just described is a corruption or degradation of a somewhat safer method of securing close connection between secondary schools and colleges which was first adopted twenty years ago by the University of Michigan. This safer method, as developed by that University, amounts to this: The University admits candidates on the diplomas of any schools, near or remote, within the State or without, which are visited and accepted once in three years by a committee of the Faculty, or by other persons designated by the University. The visit may be repeated if any important changes take place in a school within the three

years. The diplomas must specify that the candidates have sustained examinations at school in all the studies prescribed for admission to one or other of the University courses leading to a degree. There were in 1889 seventy schools holding this "diploma relation" to the University of Michigan. It cannot be doubted that this method is well adapted for recruiting rapidly a single dominant State university; but its value as a method for general adoption obviously depends on the thoroughness, impartiality, and publicity of the inspection which it provides. The inspection provided by the University of Michigan seems to fail on all three points. Considering the rapidity with which teachers are changed in American schools, an inspection once in three years seems too infrequent. It is simply incredible that a busy college faculty should have time to inspect properly any considerable number of secondary schools, or that it could furnish a sufficient number of inspectors competent in all secondary-school subjects. The Harvard faculty of arts and sciences is larger than the corresponding Michigan faculty; yet the Harvard faculty would probably declare that they could not inspect twenty secondary schools a year with sufficient thoroughness to warrant them in expressing a public judgment on the merits of the several schools, unless, indeed, they performed this function at the expense of their own proper work of collegiate instruction. Moreover, there is not a single member of the Harvard faculty who would, without a good deal of special preparation, feel

himself competent to examine a well-organized secondary school in all its departments. To examine thoroughly such a school, a committee of at least three members of the Harvard faculty would be required, and these teachers would have to be withdrawn from their college work for three or four days in the case of a neighboring school, and for a longer time in the case of a distant school. As to procuring competent inspectors — not of the faculty — in numerous remote localities, it seems quite impossible, when we consider how much knowledge, experience, and good judgment are required for examining all the work of any school. The moment we come down to such details as these, we inevitably conclude that the inspection of secondary schools provided by the University of Michigan, single-handed, must be rather cursory. It is also obvious that the method is not public enough in its processes to demonstrate its fairness and efficiency, and therefore to command general confidence. The single-acting authority obviously has interests of its own to serve. For the purposes of this discussion, it is not necessary to maintain that the diploma method, as conducted in Michigan, has not worked well, or even that it has not worked so well as the method of admission by examination, as conducted in Michigan. There is some gain in establishing friendly relations between seventy secondary schools and any university. But it is necessary to urge that it lacks adequate securities, and is therefore not fit for general adoption. The Minnesota method, which provides in the State

High-School Board an independent inspecting authority, is greatly to be preferred.

There remains the most effective mode in which colleges act on the superior sort of secondary schools, namely, the method of conducting careful examinations in all the subjects acceptable for admission. These examinations have a fair degree of publicity; for most colleges circulate freely their question papers. Harvard College also publishes in detail the results of its examinations for admission. Such examinations are no longer, as formerly, held only at the seat of the college conducting them, but may be held simultaneously at as many places as the convenience of candidates may require. Several Eastern colleges now conduct examinations at numerous places widely distributed over the country. Yale University distinctly announces that it will hold an admission examination "in any city or at any school where the number of candidates and the distance from other places of examination may warrant it." The method can easily be given a national application by any institution which has prestige and a numerous staff. In the long run, it grades schools fairly, and it is very stimulating to the older classes in secondary schools. Like all examinations conducted by an authority independent of the schools, it also protects the masters of schools, both public and private, against the unwarrantable importunities of parents, trustees, and committeemen. Nevertheless, it is open to some serious objections. In the first place, it is not sufficiently public. The ques-

tion papers may look well; but the standard for passing may be unreasonably low, the public having no means of estimating the degree of strictness with which the answer papers are marked. Secondly, the colleges have, until lately, acted singly, each for itself, without consultation or concert. Each college or university is, therefore, naturally supposed to be seeking its own interest rather than the common welfare. Thirdly, in a small college a few men, who perhaps have peculiarities or whims, may control all the admission examinations for many years, to the disadvantage of the college and the annoyance of schools. All these evils would be removed or reduced by a system of co-operation among several colleges.

At the conclusion of this rapid survey, the question naturally suggests itself, in what directions patriots who desire to see American secondary schools improved and connected more closely with colleges may look for progress. There are certainly three such directions.

1. We may expect State examining and inspecting systems to improve and extend, for they have demonstrated their utility; and, remembering the extremes to which examination methods have been carried in England, we may reasonably hope that State boards will more and more inspect institutions as well as examine individuals. The profession of school-inspector will therefore become recognized as a separate and honorable calling.

2. We may hope to see formed a combination of four or five of the universities which maintain

large departments of arts and sciences to conduct simultaneously, at well-selected points all over the country, examinations in all the subjects anywhere acceptable for admission to colleges or professional schools, the answer papers to be marked by persons annually selected by the combined universities and announced to the public, all results to be published, but without the names of candidates, and certificates to be good anywhere for the subjects mentioned in them. We see reason to believe that such a coöperative system would be simple though extensive; that it would present no serious difficulties, mechanical or other; that it would be convenient and economical for candidates, and self-supporting on moderate fees; and, finally, that it would be authoritative, flexible, stimulating, unifying, and just.

3. We may expect to see a great extension of the scholarship system, whereby promising youths are helped through secondary schools and colleges. States, cities, towns, and endowments provided by private benevolence, will all contribute to the development of this well-proved system.

THE AIMS OF THE HIGHER EDUCATION

At Chicago, 1891

THE AIMS OF THE HIGHER EDUCATION

THE subject which I have the honor of presenting to you this evening is a noble one: the aims of the higher education — not its actual attainments, and not even its hopes of attainment in the near future, but its aims, the distant objects which it keeps in view, the ideals toward which it aspires. Let us first briefly consider what is meant by the higher education. In the division of that long course of education which the most thoroughly trained young American can get — a course which covers about twenty years between the sixth and the twenty-sixth or twenty-seventh year — the higher education is that which he receives after he is eighteen or nineteen years of age. It is that which he receives in the comparative freedom of college or university after school life is ended, and usually after his home life with his parents is over. It ordinarily covers three or four years of instruction in what are called the liberal arts or sciences, and after that period a professional training —

a broad term, which includes the special training for the professions of divinity, law, medicine, engineering, applied chemistry, architecture, teaching, and various other callings which require both special learning and special skill. The higher education thus covers a period of six or seven years. It is given in universities — institutions in which a young man is more or less separated from the working world, and enabled to devote himself to systematic study and practice. Many people draw a distinction between an educated and a practical man; but true education is, after all, nothing but systematic study and practice under guidance. In this comparative seclusion the young man learns something of what has been done and thought in the world, before he takes active part in its work. He puts himself in some one subject abreast of the accumulated wisdom of the past; he develops and increases his own powers, and gains command of those powers. He gets knowledge, to be sure, but, better than that, he gets power. Some college-bred men develop only their powers of acquisition. They absorb knowledge, but cannot give it out or apply it. The powers of exposition and application are more important than the power of acquisition, and should be trained as carefully. The student who cannot apply the principles of geometry to new problems may have gained knowledge through his study of that subject, but he has not gained available power. Universities too often forget this. They are even now modifying many of their methods the better to cultivate effective

power in their students. The main gain from elaborate education is added power.

Universities have three principal, direct functions. In the first place, they teach; secondly, they accumulate great stores of acquired and systematized knowledge in the form of books and collections; thirdly, they investigate, or, in other words, they seek to push out a little beyond the present limits of knowledge, and learn, year after year, day after day, some new truth. They are teachers, storehouses, and searchers for truth. Let us consider for a few moments the university in each of these fundamental functions.

1. A university teaches. What does it teach? It must obviously teach all the languages in which the great literatures which have been preserved were written — Hebrew, Arabic, Sanskrit, Greek, Latin, French, Italian, German, Scandinavian, and English; it must teach all history—Babylonian, Egyptian, Hebrew, Greek, and Roman, and all modern history; it must teach how the most precious human institutions have grown up and come to their present state — the institutions of civil government, of the family, of the church, and of the school; it must teach everything that human insight has discovered about the structure and working of the human body and the human mind; it must teach everything mankind has learned about the broad realm of nature — the heavens and the earth, the plants and the animals, aërial, aquatic, and terrestrial; it must set forth the laws of all the great chemical, physical, and biological forces

mankind has discerned, and in subordination to which the race lives; and, finally, it must set before its pupils the literatures of the world,— the precious fruit of the human imagination in its farthest reaches, — and it must interpret those great ideals of our race, virtue, duty, piety, and righteousness. All these are included in what are termed the liberal arts and sciences. Beyond this immense body of instruction lie the professional subjects. The expansion of professional education is one of the main characteristics of educational progress during the past twenty-five years in all civilized countries. In every profession the number of new subjects which a master in the profession must understand is formidable, and in consequence the time demanded for preparing a young man for any one of the professions is constantly increasing. Four years is now a moderate period for preparation for any one of the learned or scientific professions. In a university all the learned or scientific professions may be prepared for.

The division of subject between the professional schools of a university is deep and wide. The student of medicine hardly touches one of the subjects to which the student of divinity or of law must almost exclusively devote himself; the student of theology pays no attention to a great group of subjects which occupies completely the time of the student of electrical engineering for four years; yet in a true university the spirit of the teaching and of the study in preparation for all these varied professions is one and the same,

viz., the spirit of modern science—candid, fearless, truth-seeking, searching for the fact regardless of the consequences.

The president of a university is a member of all its faculties. He listens to the discussions in all the faculties on subjects and methods of instruction, and learns to recognize the modes of thought of the teachers in the various fields. In the true university he will always see that the spirit is one, while the subjects are diverse. There is to-day no difference between the philologist's method of study and the naturalist's, or between a psychologist's method and a physiologist's. Students of history and natural history, of physics and metaphysics, of literature and the fine arts, find that, though their fields of study are different, their method and spirit are the same. This oneness of method characterizes the true university, and partly justifies the name. This observation can best be made, and this fundamental lesson learned, in a large institution which comprehends all the knowledges, and contains students pursuing a great variety of researches.

By the side of the schools ordinarily called professional there stands in the true university an advanced school of liberal arts and sciences, ordinarily called, in the United States, the graduate school, department, or course. This is the professional school for teachers, men of letters, journalists, naturalists, physicists, chemists, and mathematicians. Observe the extraordinary variety and the range of the teaching which every university

must aim to give. Cornell's description of the university he wished to found was a just one: "I would found an institution in which any one may study anything." Nothing short of this is the true aim of a university in teaching. It should cover the whole field of human knowledge, and be able to bring its students to the very frontier of acquired knowledge in every direction. Its methods of teaching are necessarily diverse; they include the recitation, the lecture by the professor and the lecture by the student, the individual instruction in laboratories, written exercises in great variety, observation in the field, bedside study for medicine and surgery, quick note-taking and sketching, and the elaborate thesis. Intimate conversational and critical methods for advanced students are comprehended under the terms "conference" and "seminary." In each of the great professions there are opportunities for wide excursions outside of the most necessary fields of knowledge. Thus, in the study of divinity the historical courses may include not only the history of the Christian church, but the comparative study of all known religions; in medicine there is the great field of veterinary medicine, now so important for the advancement of human medicine; and in law there is a wide range of inquiry into the history of legal institutions and legal principles, most of which may be traced back for centuries. Again, in every active and progressive university there is an incessant development of scientific classifications, a new ordering of facts, and a new presenta-

tion of the results of investigation. Every generation recasts the statements and theories of the preceding, and presents old facts under new forms. This brief outline may perhaps picture to you the ideals of a university as teacher.

2. Let us next consider the university as storehouse. At the heart of every university there must be a great library. A small collection of books will do for the elementary student, but the advanced student needs a large collection; and the university that undertakes to provide for the wants of advanced students in all departments absolutely requires an immense collection of books, and must have the means of buying every year all the really good books that are issued in the civilized world. This means great cost, not only for the purchase of books and periodicals, but for cataloguing and shelving, and then for delivering the books to readers with expedition and security. On its collections of books alone Harvard University spends between forty-five and fifty thousand dollars a year, and could advantageously spend much more. A century ago books were almost the only great store which a university was expected to accumulate, but now it must possess, besides the library, great collections in every branch of natural history — collections of stuffed animals, dried plants, fossils, rocks, and minerals; of living trees, shrubs, and flowers; and of apparatus in chemistry, physics, and biology. Again, it is not enough to make great collections to illustrate the actual condition of the animal, vegetable, and min-

eral kingdoms; the university must illustrate past conditions also by means of geological, historical, and archæological collections. A great university must also illustrate the history of the fine arts, if not by original works, at least by reproductions; and such a museum should illustrate the art, not of a single nation, but of all nations, and not of a single generation, but of all generations which have left to us any of their handiwork. The great collections of a university are necessary means of teaching; but they teach not only the students of the university, but the public at the university seat. The means of illustrating nature in great collections constantly improve; thus, within recent years artistic glass-blowing has enabled museums of botany and zoölogy to illustrate in large models what the human eye sees only by the aid of powerful microscopes, and the most fragile and transitory objects, like delicate flowers, are perfectly reproduced in durable form. In like manner the most minute and delicate forms of animal life are reproduced in glass, and represented to the naked eye just as they appear to the observer using high powers in a microscope. The museums of a great university are crowded with objects of the most wonderful beauty — beauty of form and beauty of color, as in birds, butterflies, flowers, and minerals. They teach classification, succession, transmutation, growth, and evolution; but they teach also the abounding beauty and loveliness of creation.

The function of a university considered as a

storehouse is indefinitely costly, but it is indispensable; and as man's knowledge of nature enlarges this function of the university will enlarge. It may be doubted whether the American method of providing for the higher education will prove adequate to the enormous expenditure which the university, considered as a storehouse, requires; but if the endowment method fails we shall have to fall back on the European plan of governmental subsidies. The university as storehouse is essential to the intellectual progress of the nation.

3. The university seeks new truth. A university is a society of learned men, each a master in his field; each acquainted with what has been achieved in all past time in his special subject; each prepared to push forward a little the present limits of knowledge; each expecting and hoping to clear up some tangle or bog on the frontier, or to pierce, with his own little search-light, if only by a hand's-breadth, the mysterious gloom which surrounds on every side the area of ascertained truth. Hence universities are places of research, of diligent inquiry for new or forgotten truth. This function is quite as indispensable as either of the two former. It is indispensable for two reasons: first, because a university which is not a place of research will not long continue to be a good place of teaching; and, secondly, because this incessant, quiet, single-minded search after new truth is the condition of both material and intellectual progress for the nation and for the race. We easily apprehend the fact that the studies of Aristotle, Hip-

pocrates, Kant, Descartes, and Adam Smith, of Copernicus, Newton, Faraday, and Darwin, are the means of intellectual progress; but we do not so clearly discern that material progress also depends on a long series of patient, unrewarded investigations which have been conducted by obscure students, generation after generation, in secluded seats of learning.

An extraordinary development of electrical invention has astonished the world within the last ten years; but those numerous electrical inventions were made possible only by the previous studies of obscure men who contributed this little fact, or that little principle, to the acquired stock of electrical science. Professor Koch of Berlin makes an alleged discovery which profoundly interests the whole civilized world; but he has used the discoveries in bacteriology of scores of unknown men who were his necessary forerunners; and the whole science of bacteriology is indebted for all its most recent and striking progress to the invention of the immersion-lens, which gave the microscope new power for biological research. Thus a discovery in one science enables some long-prepared and waiting student to take a great step in another, the first discoverer having not the least idea of the direction in which his work may be made most immediately available. Many commercial ventures, new forms of business, and new methods of transportation spring really from remote, obscure, and apparently useless discoveries, the applications of which their discoverers never

imagined, and would probably have been profoundly indifferent to.

In this function of truth-seeking by scientific research in every field of human knowledge, the university develops a very peculiar and interesting kind of human being — the scientific specialist. The motives, hopes, and aims of the investigator — I care not in what field of knowledge — are different from those of ordinary humanity. He must have a livelihood; but he is almost completely indifferent to money, except as it secures simple livelihood and opportunity for his work. He is wholly indifferent to notoriety; he even shrinks from and abhors it: and his idea of fame is different from that of other men. He would indeed like to have his name favorably known, not to millions of people, but to five or six students of the Latin dative case, or of the Greek particle αν, or of fossil beetles, or of meteorites, or of starfish. He much dislikes to see his name in the newspaper; but he hopes that a hundred years hence some student of his specialty may read his name with gratitude in an ancient volume of the proceedings of some learned academy. He is an intense and diligent worker; but the masses of mankind would think he was wasting his time. He eagerly desires what he calls results of investigation; but these results would seem to the populace to have no possible human interest. He is keen-scented, devoted, and enthusiastic, but for objects and ends so remote from common topics that he rarely possesses what is called common

sense. The market-place and the forum are to him deserts, and for the common pursuits of men he would say impatiently that he had no time, as Louis Agassiz said when some one asked him why he did not make money. A university should provide a large number of these specialists with a livelihood, with all the needed facilities for their work, such as libraries, collections, laboratories, and assistants, and also with opportunity to teach.

Such being the three principal, direct objects or aims of a university, let us consider some of the less direct but still important purposes which it aims to fulfil.

1. In the first place, a great university exerts a unifying social influence. It is resorted to in most countries, notably in our own country, alike by rich and poor, by the children of the educated and the uneducated — in short, by the children of families of all sorts and conditions. Upon the roll of the students of Harvard University in any year will be found the names of a few sons of the rich and of many more sons of very poor families, while the great body of students belong to the middle class. In most American colleges, the older as well as the younger, the majority of students are the sons of men who were not themselves highly educated. In no American college is there any considerable proportion of the sons of graduates of that college. In Harvard College — that department of Harvard University which gives the degree of Bachelor of Arts — the number of sons of graduates very seldom, if ever, exceeds one eighth

of the whole number. In all American universities, in those of New England quite as conspicuously as in the Western, the whole organization of college life is intensely democratic, and there is a complete fusion of the whole body of students in all the intellectual and all the athletic pursuits of the place. I am not acquainted with any portion of American society, high or low, rich or poor, in which there are so few distinctions and separations based on social inequalities as in the American colleges. The separation between neighbors in a New York tenement-house of the poorest sort is often profound — quite as deep and as persistent as social divisions in the more cultivated or the richer parts of society. It is a great mistake to suppose that social exclusiveness is characteristic only of the fashionable or wealthy class. It manifests itself in every walk of American life, as indeed in all human society, whether savage or civilized. These distinctions are less conspicuous in American colleges and universities than in any other large congregations of Americans coming from families which are strange to one another.

2. In a true university the differences between the various religious denominations are softened, and mutual respect between these diverse Christian organizations is cultivated. The great universities cannot be conducted as strict denominational organizations. In a nation which has no established church, and in which no one denomination includes more than a small minority of the population, it is impossible to found a university

on a sect. Even in those nations of Europe which maintain established churches the universities have abandoned the policy of confining their privileges to the members of that church. Oxford and Cambridge are now wide open to dissenters. The universities of Germany make no distinction between Catholic and Lutheran. The University of France is equally open to Catholic, Protestant, and Jew. With the exception of State universities in the United States, almost all American universities have had a denominational origin; but the leading universities have distinctly abandoned a denominational policy. Harvard University was founded to educate ministers of the established church of the colony of Massachusetts Bay; and for nearly two hundred years it was exclusively in the control of the members of that established church; but for a generation past it has altogether escaped from these limitations. Its students now belong to every religious communion, from the Roman Catholic to the Jew and the Japanese Buddhist. No denomination is represented by more than a small minority among its students; and its officers are selected for their fitness only, without the least regard to their religious affiliations. Yale University, which was, like Harvard, founded in the interest of a single denomination,— the Congregationalist,— is now returned to the Bureau of Education at Washington, by its own officers, as unsectarian. The State universities, like Michigan, and the new universities, like the Johns Hopkins, Cornell, and Clark, are avowedly

free from sectarian control. In such institutions great bodies of American youth acquire a respect for each other's religious inheritances, and learn that conduct has very little to do with creed, or at least is not dependent upon theological opinion. Bringing together the young men of different religious communions is one of the most wholesome functions of great universities, and it is particularly wholesome in a great Protestant democracy like our own.

At Harvard University a peculiarly impressive lesson in religious unity and coöperation is systematically taught. The university maintains daily morning prayers and Sunday evening services throughout the year, and a Thursday afternoon service through the winter months. To conduct these services it employs six preachers belonging to different denominations, all representative men, drawn in the main from the immediate vicinity of the college, but coming in part from places somewhat remote from Cambridge. These gentlemen, whose theological opinions are very different, unite to conduct our chapel services, and for four years this united effort has been extraordinarily successful and instructive. The union on essentials, with the inevitable disregard of non-essential diversities, teaches a lesson of the utmost value to the thousands before whom this truly religious work goes on.

These lessons in religious toleration which great universities can teach are the more precious because we already see firmly established in this

country a large number of denominational institutions, and their number is likely to increase. Within twenty years numerous Roman Catholic colleges and seminaries (and lately a strong Catholic university) have been successfully founded, and almost all the Protestant sects have each at least one college or university. I believe that the segregation of the youth of the country in distinct denominational institutions would be undesirable for the country and undesirable for the denominations which should thus separate their youth. The influence of an educated Roman Catholic in an American community is diminished, not increased, if his education has deprived him of all knowledge of his Protestant contemporaries and of the Protestant mode of thought and feeling. Precisely in the same way the influence in after life of the members of the Episcopalian body is diminished, not increased, by their habit of resorting to schools and colleges under the exclusive control of their own religious communion. But, on the other hand, the country has gained much by the education of the youth of all these denominations, even if that education be less comprehensive and broadening than it might have been. An educated Roman Catholic, an educated Anglican, or an educated Baptist is much better for all American uses than an uneducated Roman Catholic, Anglican, or Baptist. What is desirable, however, is that all the principal colleges and universities of the country should be conducted without denominational bias, and should be resorted to by young men of every

religious faith represented among the American people.

3. A university has a unifying influence by its effect upon political divisions. A university which draws its students from a large area, from North and South, from East and West, is sure to contain numerous representatives of every political party in the country. It counts among its students Democrats and Republicans, free-traders and protectionists, spoilsmen and reformers, Prohibitionists and high-license advocates. Not an opinion in politics or on social problems but has numerous representatives in a large body of young men drawn from all parts of the country. There is inevitably incessant discussion on all these themes in any large concourse of intelligent American youth. Societies and leagues are organized to maintain this discussion; debates arise, and public men, as well as university teachers, are invited by student organizations to address them. There is, in short, a continual ferment and agitation on all questions of public interest. This collision of views is wholesome and profitable; it promotes thought on great themes, converts passion into resolution, cultivates forbearance and mutual respect, and teaches young men to admire candor, moral courage, and independence of thought on whatever side these noble qualities may be displayed. It is a serious objection to a local college or university that these diversities of view on political and social topics are not so likely to be therein represented as in a university of national resort. Harvard Univer-

sity has, in this respect, had great good fortune of late years, drawing its students from all parts of the country, although a decided majority still come from New England. It is an excellent field for the cultivation of political toleration, and for training young men in political honesty and sincerity. The majority of its graduates and its undergraduates are Republican — at any rate, they were so until very lately; in all probability are still so. In recent years it has had the good fortune to provide both parties with their candidates in many Massachusetts contests. Fifteen months ago, as I pointed out in an address I made at that time, both candidates for governor, the presidents of both of the State conventions, and the writers of both political platforms were graduates of Harvard. This year both candidates for governor and several candidates for Congress on each side were again Harvard graduates, while in the strictly local contest for the mayoralty of the city of Cambridge both candidates were graduates of Harvard. This spirit of impartiality is one very desirable for any university. At Cambridge we should like to continue to train as many candidates as possible for both the great parties of the country.

4. A university of national resort exerts a unifying influence through the mutual knowledge which the young men get of one another and hold through life. Every year hundreds of young men go out from each of the great American universities and scatter through the whole country. In their several places of residence they ordinarily

rise to places of trust and influence; and they remain united for life, however separated by distance; united by common associations, and by bonds of friendship and mutual respect. This binding influence might be greatly increased in the United States if our young men should adopt, as they might wisely do, the German practice of migrating from one university to another while seeking the degree of Doctor of Philosophy or Doctor of Science. German unity has been greatly promoted by this practice of university men; and the union of these United States has been greatly consolidated by this influence of colleges and universities, and will be still further cemented in time to come.

5. Again, American universities are schools of public spirit for the communities in which they are situated. They promote thought and labor for the public on the part of private persons in two ways: first, by demanding a great deal of gratuitous service from their trustees, or managers; and, secondly, by encouraging private benefactions for public objects. The Teutonic virtue called "public spirit" is the salvation of a democracy. Every American university demands from its trustees or managers a great deal of unpaid service; and this service is in many cases of high quality, requiring good judgment, knowledge of men, and knowledge of affairs. Indeed, so difficult is the service of trustee for institutions of the higher education that every community has to be trained for generations before it can furnish an adequate supply of men competent for these functions. It is a

great advantage of the older institutions of learning that the communities in which they are situated have been brought up to provide experienced and judicious trustees. The charter under which Harvard University is now conducted was granted in 1650, and has never since been altered. Under that charter seven men administer the whole property of the University, select in the first instance its officers and teachers, and propose its laws. These seven men now meet regularly once a fortnight, for from two to three hours in the middle of the day, and give much other time besides to the service of the University. This Corporation, as it is called, was for a long time the only corporation in the colony and province of Massachusetts, and service upon it is held in eastern Massachusetts to be a highly honorable distinction. Of the seven persons only the president and treasurer receive any compensation. The transmitted experience of that body is of untold value to the University. Many American colleges are nominally governed by boards of trustees, which meet only once or twice a year. In such cases the real government lies elsewhere; but the real governing body, whatever it be, must always be composed of men of sagacity, experience, and public spirit. The diffusion of public spirit throughout an American community by practice on governing boards of academies, colleges, universities, hospitals, asylums, art museums, and libraries is one of the most striking characteristics of our democracy, and one of its chief safeguards. The exercise of any such

function takes a man out of himself, and out of his every-day work, and makes him think and work for some broader and higher interest. In these places an intelligent and liberal man has a chance to serve the public for many consecutive years, which is not ordinarily the case in public elective offices in the United States. He can therefore really accomplish something considerable for the public during his term of service on a charitable or educational trust. Thousands of men scattered over the United States are receiving to-day this education in public spirit and public service, greatly to the benefit of the community as well as their own. In the whole group of institutions thus managed under American law and custom the university is the highest, the most interesting, and the most serviceable.

A university develops public spirit by giving men and women who are disposed to help their kind the best possible opportunity to do so. Whoever wishes to do some perpetual good in this world, whoever hopes to win that finest luxury, must exert his influence upon the young, the healthy, and the promising. Hence university endowments are the quickest, most hopeful, and most lasting means of doing good, generation after generation, to humankind at large, through the most promising youth which each generation selects to receive the highest training. A university endowment works quickly. It takes a youth of eighteen, and in six or seven years transforms him into a social, educational, or commercial power in

the world. It works most hopefully because it works on selected material — selected by the force of their own capacities, or selected by the vigor and attainments of their parents. And its influence is lasting. First, because fine, healthy, highly trained brains are the most amazingly fruitful of products. Seed-wheat or -corn is nothing to them; they not only work through a lifetime in the service of man, but fire innumerable trains of thought and action, and they also transmit more or less of their quality to succeeding generations. And, secondly, because universities are the most lasting of artificial institutions, except a highly organized church. The ancient universities of Europe have survived the destruction and reconstruction of every other institution, legal, governmental, or commercial, except that of the Greek and the Roman churches. They have lived through the rise and fall of dynasties, parliaments, and constitutions; they have seen all society remodeled from its foundations, and all methods of commerce and war profoundly changed. Even in our own new country we see manifested the same durability amid surrounding changes. Thus, Harvard University has seen the colony of Massachusetts Bay transformed into the province, and the province into the State; and it has seen the State undergo fundamental modifications in its population, industries, and religions. It is older than any existing corporation, court, or governmental organization in Massachusetts.

In still another way the well-conducted univer-

sity encourages beneficence of private persons for public objects: it gives reasonable assurance that the benefaction will be continuously useful, and will be preserved to do its work century after century. No smallest gift made to Harvard University for a permanent purpose has ever been lost. Thus, in 1727, the Rev. Thomas Cotton of London gave £33 6*s.* 8*d.* toward the president's salary, and the president still receives between seven and eight dollars a year from that fund. In 1681 Samuel Ward gave the College an island in Boston harbor, called Bumkin Island, and to this day that gift yields a rent of fifty dollars a year. It may in time to come yield a great deal more. Two ministers, Nathaniel Appleton and Henry Gibbs, both of whom became members of the Corporation in the first part of the eighteenth century, left small legacies to the College for the benefit of poor students. A lineal descendant of both of these men, a descendant in the fifth or sixth generation, the son of a farmer, receives his tuition free in the Law School to-day because of the benefactions of these two remote ancestors. Seventy-five years ago Abiel Smith gave to the College twenty thousand dollars wherewith to establish a professorship of the French and Spanish languages and of belles-lettres. That professorship has been successively held by George Ticknor, Henry Wadsworth Longfellow, and James Russell Lowell. Who can estimate the amount of service which that single modest gift has rendered to American literature? Whoever gives wisely to a strong university plants

the most fruitful of seed, which will fructify for centuries.

6. Again, a university stands for intellectual and spiritual domination — for the forces of the mind and soul against the overwhelming load of material possessions, interests, and activities which the modern world carries. This influence is most precious in a new and crude community like the United States, which is still engaged in subduing a wilderness to human uses. Over the greater portion of our national domain the stumps are still standing in the fields, the highways have never been built, the mines are unopened, and the deserts are not irrigated. Under these conditions material production is the chief interest of the people, and wealth rather than health seems to be the principal object of society. A university keeps alive philosophy, poetry, and science, and maintains ideal standards. It stands for plain living against luxury, in a community in which luxurious habits are constantly increasing and spreading. A great university contains hundreds of men — teachers, librarians, and curators — who live on modest salaries with full knowledge that they will never be rich, and that they can leave no considerable inheritance to their children. They do not even aim at the accumulation of property; often they are only too indifferent and careless about money. They seek happiness in other and higher ways than in the prevailing pursuit of wealth; and being men of more than the average ability, industry, and rectitude, they are persons of con-

sideration in the community where they live, although their mode of life is simple and secluded. The luxurious classes find it difficult to understand the delights of such men; and the scholars find it as difficult to imagine the gratifications of luxurious idleness. The common amusements of society have no charm for scholars. No man can be a successful student who does not devote his evenings to work; and the ordinary university teacher counts an evening given to the theater or to social amusement as an evening lost or wasted. In short, a university exemplifies through its teachers Wordsworth's "plain living and high thinking," and in this respect its influence is of the greatest value in any large American community.

7. Again, a university is in all countries a patriotic institution. Of all national institutions the university has almost always been the most liberal and progressive. This is its natural tendency, for "man thinking"—to use Emerson's phrase—is progressive, and youth, particularly speculative youth, is apt to be revolutionary. All poets and philosophers prophesy; their speculative thought far outruns the practical work of legislators, manufacturers, merchants, and farmers. If we would learn what governmental and social problems the next generation is to be at work upon, we must study the forelooking of poets, teachers, men of letters, and studious youth in the passing generation. Samuel Adams taking his master's degree at Harvard University in 1743 maintained the affirmative in a public discussion

of the question whether it be lawful to resist the supreme magistrate if the commonwealth cannot otherwise be preserved. It was thirty-two years later that the embattled farmers fired, at Concord Bridge, the shot heard round the world. Twenty-five years before the outbreak of the Civil War William Ellery Channing stated and enforced all the ethical principles which underlay the whole long struggle against slavery. Longfellow, Lowell, Bryant, and Whittier put into living verse the sentiments which, thrilling through millions of hearts years after they wrote, supported the Northern States through four long years of desolating war. In Europe the universities, with rare exceptions, have been, and still are, the seats of political and social agitation. In the Massachusetts of 1770 General Gage correctly described Harvard College as a "hotbed of sedition." When the detachment of troops which was to fortify Bunker Hill paraded on the little green opposite the college on the evening of June 16, 1775, it was the president of Harvard College — the patriot minister Langdon — who stood on the doorstep of the house in which Oliver Wendell Holmes was afterward born, and invoked the divine blessing on their enterprise. We remember how the universities and colleges of the North sent forth their young men to the Union armies. The colleges and universities furnish also the historians who record the nation's achievements, and keep alive for future generations the memory of great examples and heroic deeds in the council and

the field. I need but mention the names of Palfrey, Prescott, Bancroft, Motley, and Parkman. It is the teachers of the country who build the most enduring monuments to the country's heroes by telling their stories to the children they instruct. It is but natural, then, that universities should be always and everywhere patriotic. They seek ideals, and our country in the modern sense is one of the noblest of ideals, being no longer represented by an idealized person, as the king or queen, but being rather a personified ideal, free, strong, and beautiful.

Do you ask, Are all these aims of the higher education anywhere attained? Nowhere, as yet. But they surely will be as our republic grows in wealth, wisdom, and true worth.

SHORTENING AND ENRICHING THE GRAMMAR-SCHOOL COURSE

National Educational Association, Brooklyn, February 16, 1892

SHORTENING AND ENRICHING THE GRAMMAR-SCHOOL COURSE

WE may properly use the term "shortening" in either of two senses. In the first place, the number of grades may be reduced from ten to nine, or from nine to eight, so that the combined primary- and grammar-school periods shall end at fourteen or thirteen; or, secondly, the studies of the present course may be reduced in volume, or in variety, or in both, so that there shall be room for the introduction of new subjects. I observe that both kinds of shortening have actually been begun in various towns and cities, and I believe that both are desirable, if not universally, at least in most localities. The argument for the first kind of shortening is a compact and convincing one. Averaging the rates of progress of bright children with those of dull children being the great curse of a graded school, it is safer to make the regular programme for eight grades, and lengthen it for the exceptionally slow pupils, than to make it for ten grades, and shorten it for the exceptionally quick.

In other words, since holding back the capable children is a much greater educational injustice than hurrying the incapable, the programme should be so constructed as to give all possible chances of avoiding the greater evil. Without altering the nominal length of the programme in years, a great shortening of the course can be effected for part of the children simply by permitting the capable ones to do two years' work in one. I heard a grammar-school master testifying a few days ago, in a teachers' meeting, that nearly one quarter of the pupils in his school (which numbers about six hundred and fifty children) were successfully accomplishing this double task. Such a statement opens a cheerful vista for one who desires to see the grammar-school course both shortened and enriched.

With no more words about the first kind of shortening, I turn to the second kind, namely, the desirable reductions in the volume and variety of the present studies. The first great reduction should, I believe, be made in arithmetic. I find that it is very common, in programmes of the grades, to allot to arithmetic from one eighth to one sixth of the whole school time for nine or ten years. In many towns and cities two arithmetics are used during these years — a small one of perhaps one hundred pages, followed by a larger one of two or three hundred pages. Now, the small book ordinarily contains all the arithmetic that anybody needs to know — indeed, much more than most of us ever use. Before a body of experts like this it

were superfluous to enlarge on this proposition. On grounds of utility, geometry and physics have stronger claims than any part of arithmetic beyond the elements, and for mental training they are also to be preferred. By the contraction of arithmetic, room is made for algebra and geometry. In a few schools these subjects have already been introduced, with or without mention in the official programmes, and they have proved to be interesting and intelligible to American children of from eleven to thirteen years of age, just as they are to European children. Moreover, the attainments of the pupils in arithmetic are not diminished by the introduction of the new studies, but rather increased. The algebraic way of solving a problem is often more intelligible than the arithmetical, and mensuration is easier when founded on a good knowledge of elementary geometry than it is in the lack of that foundation. The three subjects together are vastly more interesting than arithmetic alone, pursued through nine consecutive years. Secondly, language studies, including reading, writing, spelling, grammar, and literature, occupy from one third to two fifths of most grade programmes. There is ample room here for the introduction of the optional study of a foreign language, ancient or modern, at the fourth or fifth grade. Here it is to be observed that nothing will be lost to English by the introduction of a foreign language. In many schools the subject of grammar still fills too large a place on the programme, although great improvement has taken place in the treatment of this abstruse subject,

which is so unsuitable for children. In the "Beginner's Latin Book," by Messrs. Collar and Daniell, I noticed, five years ago, an excellent description of the amount of knowledge of English grammar needed by a pupil of ten or twelve years of age about to begin Latin. Of course the pupil who is not to begin Latin needs no more. All the grammar which the learner needed to know before beginning Latin was "the names and functions of the parts of speech in English, and the meanings of the common grammatical terms, such as subject and predicate, case, tense, voice, declension, conjunction," etc. Manuals have now been prepared in considerable variety for imparting this limited amount of grammatical information by examples and practice rather than by rules and precepts; so that the greater part of the time formerly spent on English grammar can now be saved for more profitable uses. Thirdly, geography is now taught from books and flat atlases, chiefly as a memory study, and much time is given to committing to memory masses of facts which cannot be retained, and which are of little value if retained. By grouping physical geography with natural history, and political geography with history, and by providing proper apparatus for teaching geography, time can be saved, and yet a place made for much new and interesting geographical instruction. Fourthly, a small saving of time can be made for useful subjects by striking out the bookkeeping which, in many towns and cities, is found in the last grade. This subject is doubtless included in

the grammar-school programme because it is supposed to be of practical value; but I believe it to be the most useless subject in the entire programme, for the reason that the bookkeeping taught is a kind of bookkeeping never found in any real business establishment. Every large business has, in these days, its own forms of accounting and bookkeeping, which are, for the most part, peculiar to itself. Almost every large firm or corporation has its own method, with printed headings, schedules, bill-heads, invoices, and duplicating order-books, adapted to its own business, and intended to simplify its accounts and reduce to lowest terms the amount of writing necessary to keep them. What a boy or girl can learn at school which will be useful in after life in keeping books or accounts for any real business is a good handwriting, and accuracy in adding, subtracting, multiplying, and dividing small numbers. It is a positive injury to a boy to give him the impression that he knows something about bookkeeping, when he has only learned an unreal system which he will never find used in any actual business. At best, bookkeeping is not a science, but only an art based on conventions. As trades and industries have been differentiated in the modern world, bookkeeping has been differentiated also, and it is, of course, impossible to teach in school the infinite diversities of practice.

I have thus indicated in the briefest manner the reductions which may be conveniently made in some of the present subjects in order to effect a

shortening of the present grammar-school programme. My next topic is, diversifying and enriching it. The most complete statement of the new subjects proposed for the grammar-school programme is that made by the Association of Colleges in New England at their meeting at Brown University last November. That association then invited the attention of the public to certain changes in the grammar-school programme which it recommended for gradual adoption. These changes are five in number.

The first is the introduction of elementary natural history into the earlier years of the programme, to be taught by demonstrations and practical exercises rather than from books. The term "natural history" was doubtless intended to include botany, zoölogy, geology, and physical geography. Some room for these subjects is already made in most grammar-school programmes, and the recommendation of the association refers as much to methods of teaching as to time allotted to the subject. The association recommends that the teaching be demonstrative, and that adequate apparatus be provided for teaching these subjects. There is a lamentable lack of the proper apparatus for teaching geography in the public schools; indeed, in many schools there is no proper apparatus for teaching geography, or any other natural-history subject, to young children. Natural-science apparatus has been provided in some exceptional high schools; but as a rule grammar schools are still destitute in this important respect.

The second recommendation is the introduction of elementary physics into the later years of the programme, to be taught by the laboratory method, and to include exact weighing and measuring by the pupils themselves.

The third and fourth recommendations cover the introduction of algebra and geometry at the age of twelve or thirteen.

The fifth is the offering of opportunity to study French or German or Latin, or any two of these languages, from and after the age of ten.

3. Such are, in brief, the proposals for shortening and enriching the grammar-school course. I want to use the rest of the time allotted to me in discussing the objections to these various changes.

The first objection I take up is the objection to a reduction in the time devoted to arithmetic. Many teachers are shocked at the bare idea of reducing the time given to arithmetic, because they believe that arithmetic affords a peculiarly valuable training — first, in reasoning, and, secondly, in precision of thought and accuracy of work. They perceive that the greater part of the school programme calls only for memorizing power, and they think that arithmetic develops reasoning power. The fact is, however, that mathematical reasoning is a peculiar form of logic which has very little application to common life, and no application at all in those great fields of human activity where perfect demonstration is not to be obtained. As a rule, neither the biological nor the moral sciences can make use of mathematical reasoning. More-

over, so far as mathematical reasoning is itself concerned, variety of subject is very useful to the pupils. The substitution of algebra and geometry for part of the arithmetic is a clear gain to the pupil, so far as acquaintance with the logic of mathematics goes. Again, practice in thinking with accuracy and working with demonstrable precision can be obtained in algebra, geometry, and physics just as well as in arithmetic. It is quite unnecessary to adhere to the lowest and least interesting of these exact subjects in order to secure adequate practice in precision of thought and work.

The second objection is that there are children in the grammar schools who are incapable of pursuing these new subjects. Assuming that this allegation is true of some children, I have to remark, first, that we shall not know till we have tried what proportion of children are incapable of pursuing algebra, geometry, physics, and some foreign language by the time they are fourteen years of age. It is a curious fact that we Americans habitually underestimate the capacity of pupils at almost every stage of education, from the primary school through the university. The expectation of attainment for the American child, or for the American college student, is much lower than the expectation of attainment for the European. This error has been very grave in its effects on American education, all along the line from the primary school through the university, and till within twenty years the effects were nowhere

worse than at the college grade. It seems to me probable that the proportion of grammar-school children incapable of pursuing geometry, algebra, and a foreign language would turn out to be much smaller than we now imagine; but though this proportion should be large, it would not justify the exclusion of all the capable children from opportunities which they could profit by. At the worst, this objection can only go to show that it will be necessary to adopt in the grammar schools a flexible instead of a rigid system — some selection or choice of studies instead of a uniform requirement. Those children who are competent to study a foreign language should certainly have the opportunity of doing so at the proper age, that is, not later than ten or eleven years; and those who are competent to begin geometry at twelve and algebra at thirteen should have the chance. If experience shall prove that a considerable proportion of grammar-school children are incapable of pursuing the higher studies, that fact will only show that the selection of appropriate studies for children by their teachers should be adopted as a policy by the public grammar school. To discriminate between pupils of different capacity, to select the competent for suitable instruction, and to advance each pupil with appropriate rapidity, will ultimately become, I believe, the most important functions of the public-school administrator — those functions in which he or she will be most serviceable to families and to the state.

Another objection to the changes proposed often

takes this form: they are said to be aristocratic in tendency. The democratic theory, it is said, implies equality among the children, uniformity of programme, uniform tests for promotion, and no divisions in the same school-room according to capacity or merit. I need not say to this audience that these conceptions of true democracy in schools are fallacious and ruinous. Democratic society does not undertake to fly in the face of nature by asserting that all children are equal in capacity or that all children are alike and should be treated alike. Everybody knows that children are infinitely diverse—that children in the same family, even, are apt to be very different in disposition, temperament, and mental power. Every child is a unique personality. It follows, of course, that uniform programmes and uniform methods of instruction, applied simultaneously to large numbers of children, must be unwise and injurious — an evil always to be struggled against and reformed, so far as the material resources of democratic society will permit. It is for the interest of society, as well as of the individual, that every individual child's peculiar gifts and powers should be developed and trained to the highest degree. Hence, in the public schools of a democracy the aim should be to give the utmost possible amount of individual instruction, to grade according to capacity just as far as the number of teachers and their strength and skill will permit, and to promote pupils, not by battalions, but in the most irregular and individual way possible. A few days ago I

heard an assistant superintendent in an important city declare that many grammar-school teachers in his city objected to any division among the fifty or more pupils in each room — any division, that is, according to the attainments and powers of the individual pupils. They wanted all the pupils in a given room to be in one grade, to move together like soldiers on parade, and to arrive at examination day, having all performed precisely the same tasks, and made the same progress in the same subjects. If that were a true portrait of the city graded school, it would be safe to predict that the urban public school would before long become nothing but a charity school for the children of the dependent classes. Intelligent Americans will not subject their children to such a discipline when they once understand what it means. The country district school, in which, among forty or fifty pupils, there are always ten or a dozen distinct classes at different stages and advancing at different rates of progress, would remain as the only promising type of the free school. Not only is it no serious objection to the new proposals that they must diminish uniformity in schools: it is their strongest recommendation.

So far from the changes proposed being of aristocratic tendency, they are really essential to a truly democratic school system; for they must be adopted and carried into effect before the children of the poor can obtain equal access with the children of the rich to the best education they are capable of, whatever the grade of that education

may be. Accessibility of appropriate opportunity is the essence of democratic society. Not equality of gifts, attainments, or powers, for that equality is unnatural and impossible; not abundance of inappropriate opportunities, for such abundance is of no avail; but accessibility of such appropriate opportunities as the individual can utilize for his own benefit and that of society. The American grammar-school programme now actually prevents an intelligent child from beginning the study of a foreign tongue at the right age. We all know that that age is very early — long before the high-school period. It prevents him from beginning the study of algebra and geometry at the right age. It makes it impossible for him to get a chance at the right kind of study of natural science. If a boy is not to go to the high school, he loses that chance forever, under our present system. If he is going to the high school, he does not get the chance till much too late. The poor boy in the United States should have as good a chance as the child of a rich man to obtain the best school training which his character and powers fit him to receive. Is not that a fair statement of what democratic society may reasonably aim at and seek to effect through its own grammar schools? Yet the existing grammar-school programme actually prevents the poor boy from getting that chance. The rich man can obtain for his children a suitably varied course of instruction, with much individual teaching, in a private or endowed school; but the immense majority of American

children are confined to the limited, uniform, machine programme of the graded grammar school. A democratic society was never more misled as to its own interest than in supposing such a programme to be for the interest of the masses. The grades for pupils of from six to fifteen years of age are an obstruction to the rise, through democratic society, of the children who ought to rise. Uniformity is the curse of American schools. That any school or college has a uniform product should be regarded as a demonstration of inferiority — of incapacity to meet the legitimate demands of a social order whose fundamental principle is that every career should be open to talent. Selection of studies for the individual, instruction addressed to the individual, irregular promotion, grading by natural capacity and rapidity of attainment, and diversity of product as regards age and acquisitions, must come to characterize the American public school, if it is to answer the purposes of a democratic society.

It is alleged as a fourth objection that the changes proposed are chiefly for the advantage of the well-to-do children whose education is to be carried beyond the grammar school to the high school, and possibly to the college above the high school. They are indeed for the interest of this class of children; but they are much more for the interest of the children who are not going to the high school, and for whom, therefore, the grammar school is to provide all the systematic education they will ever receive. The Association of Colleges in New

England distinctly says that it makes its recommendations in the interest of the public-school system as a whole; "but most of them are offered more particularly in the interest of those children whose education is not to be continued beyond the grammar school." Take, for example, the subject of geometry. It has many and very important applications in the arts and trades. Every mechanic needs some knowledge of it. Its applications are as important as those of arithmetic, if we except the very simplest and commonest arithmetical operations. That the great mass of American children should leave school without ever having touched this subject — except, perhaps, in arithmetic, under the head of mensuration — is a grave public misfortune. To introduce variety into the grammar-school programme is in itself likely to profit the children who are never to go to school after they are fourteen years of age even more than the children who are. A child who is dull in one subject may be bright in a different subject. Thus, a child who has no gift in language may be keen and quick in natural-history studies; a child who has no taste for arithmetic may prove unusually strong in geometry; one whose mind is not easily moved through purely mental exercises may be intellectually developed through drawing and manual training. In college we are extremely familiar with these diversities, and the elective system is now giving, in most American colleges, free play for the profitable exhibition and cultivation of these diverse gifts. In a similar manner, the grammar

school will be better for even the dull and slow children if its studies are made more various and its whole system more flexible.

A fifth objection to the introduction of new subjects is that children are already overworked in school. In an address which I gave rather more than a year ago, I pointed out that there are two effective mechanical precautions against the ill effects attributed to overwork at school — precautions which, it is delightful to see, are more and more adopted. They are good ventilation and the systematic use of light gymnastics at regular intervals during school hours. School-time ought to be the best managed of all the day, from a sanitary point of view, excepting those hours which the children pass out of doors. If the school-room were invariably healthier in every respect than the average home, we should hear less about overwork at school. There is, however, a third precaution against overwork which is quite as important as either of those already mentioned; it is making the school work interesting to the children. Four years ago I asked the attention of this department of the National Educational Association to the depressing effect which lack of interest and conscious progress in school work has upon children. To introduce new and higher subjects into the school programme is not necessarily to increase the strain upon the child. If this measure increases the interest and attractiveness of the work and the sense of achievement, it will diminish weariness and the risk of hurtful strain.

Lastly, there is an apprehension lest the introduction of the new subjects recommended should increase existing difficulties with regard to promotion. Parents are sensitive about the promotion of their children. They want the dull ones and the bright to be promoted at the same rate. Their sympathies are quite as apt to be with the slow children as with the quick. I believe that this practical difficulty should be met, in part, by the abandonment of uniform attainment, or of a standard of required knowledge, as ground of promotion. In Harvard College, where there is no such thing as a uniform programme of study for all students, and where, indeed, there is small chance that any two students out of fourteen hundred and fifty will pursue the same course of studies during their four years of residence, we have long since abandoned uniform attainment as ground of promotion from one class to another. The sole ground of promotion is reasonable fidelity. I venture to believe that this is the true ground of promotion in grammar schools as well, and that, by the sole use of this principle in promoting, the difficulty now under consideration would be much alleviated, if not done away with. The right time for advancing a child to the study of a new subject is the first moment he is capable of comprehending it. All our divisions of the total school period into years, and into primary, grammar, and high schools, are artificial, and in most cases hurtful or hindering to the individual. The whole school life should be one unbroken flow from one fresh inter-

est and one new delight to another, and the rate of that flow ought to be different for each different child. Economical school administration inevitably interferes somewhat with the desirable continuity and variety of motion; but the most skilful and wisest administration is that which interferes least.

On reviewing the progress of this reform since I had the honor of discussing the question, "Can school programmes be shortened and enriched?" before this Department of Superintendence, four years ago, I see many evidences that a great and beneficent change in public-school programmes is rapidly advancing. The best evidence is to be found in the keen interest which superintendents and teachers take in the discussion of the subject. Through them the proposed improvements will be wrought out in detail; their influence will be successfully exerted on parents, committees, and the public press; and their reward will be, first, the daily sight of happier and better-trained children, and, secondly, the elevation of their own profession.

UNDESIRABLE AND DESIRABLE UNIFORMITY IN SCHOOLS

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MY subject is "Undesirable and Desirable Uniformity in Schools," the word "schools" being used in a large sense. To present it with tolerable completeness I shall be obliged to state some facts and principles already familiar to many persons in this professional assemblage. Education is properly the development and training of the individual body, mind, and will; but when it is systematized, and provided for many thousands of pupils simultaneously, it almost inevitably takes to military or mechanical methods; and these methods tend to produce a lock-step and a uniform speed, and result in a drill at word of command rather than in the free development of personal power in action. The interests of the individual are frequently lost sight of, or, rather, are served only as the individual can be treated as an average atom in a homogeneous mass. This natural tendency in systems of education I believe to be a great evil, particularly in a democratic society,

where other influences, governmental, industrial, and social, tend toward averaging the human stock.

1. Let us first consider in some detail the undesirable uniformity in schools. The graded school of large towns and cities will supply our first illustration. In any room of a perfectly graded grammar school we find, in the fall, a single class of from forty to sixty children who are supposed to have had the same preparation for their coming year's work; who are to have the same lessons, in the same books, at the same times, under the same teacher, throughout the year; who are to make as nearly as possible the same progress every day in each subject, and to submit to the same tests at the same intervals. They are all kept together, day by day, so far as is possible. The bright ones never work to their utmost, and are frequently marking time; the slow ones are urged forward at a rate which drives some of them to despair; and the ideal of the class is that of equal preparation, equal capacity, equal progress, and equal attainments. If, at the beginning of the year, the children are obtrusively unequal in capacity or attainments, it is an inconvenience to be regretted. The teacher will not be able to "handle her class" so easily as she could if they were all of the same mental size and strength. If, at the end of the year, they have not been pretty well evened up, the teacher has been less successful than she could have wished. This is an extreme statement of the most undesirable uniformity in schools. This is the sense in which close grading is an educational curse. In my opin-

ion, the right aims, in any room of a primary or grammar school, are to recognize at the beginning of the year, as promptly as possible, the different capacities and powers of the children; to carry them forward, throughout the year, each at his own gait and speed; and to turn them out at the end very much more different in capacity and attainments than they were at the beginning. It has always seemed to me that a teacher who did not discharge his pupils at the end of each year much more unlike in powers and acquisitions than they were at the beginning was a proved failure. We all know that children, like adults, are not alike, but infinitely different; that the object of education, as of life, is to bring out the innate powers and develop to the highest possible degree the natural and acquired capacities of each individual. An education or training, therefore, which at the end of four years, ten years, or twenty years leaves the subjects of it alike in skill, capacity, or power of service must have been ill directed.

The individuals, in any group of men and women who start together in active life at about twenty years of age, become, through their various work, service, and experience, more and more different as they go on. We expect that at sixty their powers will be very different, having been exercised in unlike fields and in various measure, and that their acquired stores of knowledge and experience will be as different as their powers. This variety is at once the strength and the charm of human society. Now, the effect of school work on

children should be analogous to the effect of life on adults; for school is preparation for life.

Let us take another illustration, at a higher grade — the secondary school, represented in the United States by the high school, the academy, and the private preparatory school. These schools hold children until the seventeenth, eighteenth, or nineteenth year. By that time of life almost every peculiar mental or physical gift which by training can be made of value to the individual or to society is already revealed to its possessor and to any observant friend, provided that the youth has had access to those various fields of human knowledge and research in which the various mental capacities and activities find play. If a youth has never had access to any studies except Latin, Greek, and mathematics, he will perhaps remain ignorant of his powers in scientific or historical study. If he has never had access to any language but his own, his linguistic gifts may be concealed from himself and his friends. This revelation to himself of a youth's natural predispositions and faculties is one of the principal objects of secondary education. Now, if the only school that the youth has attended has had a narrow, uniform programme, containing a limited number of subjects, without options among them, this important object in secondary education may not have been attained for the individual. A good secondary school must have a programme of studies larger and wider than any single pupil can follow, else its range of subjects will be too small to permit the

sure fulfilment of this all-important function of a good secondary school — the thorough exploration of all its pupils' capacities.

Let me further illustrate undesirable uniformity in schools with a higher programme still — that of an old-fashioned college. A young man, on completing his college course, is to make a choice of a profession. A large majority of the graduates of all our colleges go into the three learned professions, so called, into teaching, journalism, and the other literary pursuits, and into the various scientific professions. I need not say that the choice of a profession is of immeasurable importance in determining each man's future happiness and serviceableness. Now, these professions are so very unlike, calling for such different mental attributes and personal qualities, that the choice among them should always be led up to by clear indications of the individual's aptitudes and tastes obtained in earlier years. The young man who is fit to make a physician should have been earlier drawn irresistibly to chemistry, physics, and natural history. He should have exhibited a natural tendency toward those subjects, and that tendency should have been gratified. The young man who is to be a minister should have been drawn in college to the study of language, philosophy, ethics, sociology, and political science, and should have had ample opportunity to obey those natural attractions. The young man who is to be a lawyer should have felt disposed to study in college Roman and mediæval history, the history of institutions and

governments, political history, ethics, rhetoric, and logic, and to practise discussion and debate in speech and writing. The journalist, long before he decides to begin his specific training as a writer for the press, should have been conscious of a preference for literature, sociology, political science, and history, and should have been drilled daily for years in the writing of English, under criticism. Now, the uniform prescribed college curriculum gave no proper opportunity for the students to follow, each for himself, his natural leadings toward the wise choice of a profession.

Considering the diversity of discipline and knowledge which should underlie the professional training for these various callings, is it not wonderful that many generations of teachers should have advocated a uniform preliminary training for them all? Yet the old-fashioned, uniform, prescribed, elementary college course was just that — a preliminary training supposed to be equally good for those destined to any of the learned, scientific, and literary professions. It was a vivid example indeed of undesirable uniformity in schools.

People have always recognized the great difference of powers between remarkable individuals and the common run of men, and even the difference between one remarkable individual and another. Mankind has always refused to believe that its greatest benefactors belonged to the common race of men. Its great rulers, inventors, and teachers have generally been deified. Everybody sees that Shakspere, Napoleon, and Lincoln were

types of quite indescribable diversity in character and mental powers, but mankind has apparently failed to perceive how different ordinary people are one from another; and human society, until it became democratic in organization, never had a fair chance to win the proper advantages from the real diversity of ordinary individuals. It required the mobility of democratic social classification to prove the importance to society of discovering all the small, peculiar gifts and faculties which reside in individuals. We know now that it is greatly to the interest of society to discover and utilize the man, ordinary in other respects, who has the little gift of determining with certainty the commercial value of different sorts of wool merely by rubbing them between his sensitive fingers. We know that it is important to discover and educate as a surgeon the man who can feel more and more certainly with the tip of his forefinger, in places out of sight, than any other person in the city. We know that it is for the interest of society to discover and train every man who has the peculiar eye to recognize by tints, which tarry but for an instant, the right temper of a steel drill. We know what a tremendous influence may come from a plowman who can write verse, or from a peasant woman who can sing, if only their natural gifts be discovered and trained. We have lately learned that from two German workmen of the mechanic class,— father and son,— endowed by nature with an exquisite eye for tints and textures, may come, with proper training and encouragement, an entirely new

method of illustrating flowers, so that they can be studied in colored-glass models, both of natural size and of enlarged size, at all seasons of the year. It is the mobility of democratic society — a new thing in the world — which has brought home to us the importance of discovering and training each least individual gift and power. The greatest natural gifts reveal themselves, and the genius is, as a rule, independent of institutions of education. It is the humble, small, inconspicuous, but vastly more numerous, peculiar individual endowments which systems of education should take infinite pains to bring out. Uniformity in schools crushes and buries them.

Again, democratic society cannot help seeking equality of condition for all men, though it is not so foolish as to believe in equality of natural faculties or powers. Now, the best chance of securing an approximate equality of condition lies precisely in this discovery, and development through education, of the peculiar endowments of each individual in the community. The great capacities or powers do not lead to happiness and prosperity in this world any more surely than the small personal gifts. A little gift, well utilized, may do more for the individual and his family than a greater gift. The world does not reward men in proportion to the intellectual quality of their work. The village shopkeeper earns more than his minister. Many a skilful mechanic, whose gift is one of the eye or the hand, earns more than the primary-school teacher or the newspaper writer. If public educa-

tion discovered and developed the infinite diversity of gifts and powers among the school-children, the chances of an approximate equality of condition during the adult life of those children would be greatly increased. Uniformity in schools impairs these chances.

Any one who has had much experience in schools or colleges must have learned that as the course of education goes on, and new subjects are set before a class or group of pupils, the bright and the dull children not infrequently change places — those that were accounted bright become apparently dull, and those that were accounted dull become, perhaps, leaders. The reason is that the dull children have finally been brought to a subject in which they excel; while the bright ones, who have been exercising a faculty which they possessed in large measure, have been brought to a new field, to which their powers are not adapted. Flexible and diversified school programmes will give all the children their most favorable chance; stiff and uniform programmes will not. No machine, like an army, a ship, or a factory, can be a democratic institution; for it demands from the many implicit obedience, and the subordination of the individual energy to the movements of the mass. So far as a school is a machine of uniform product, it must fail, on that very account, to serve as it might the real interests of democratic society.

I have thus far urged that a strictly graded grammar school, a high school or academy with a single limited programme, or a college with a uni-

form prescribed curriculum, must suppress individual differences instead of developing them, and must leave individual capacities undiscovered and untrained, thus robbing the individual of happiness and serviceableness, and society of the fruits it might have enjoyed from the special endowments of thousands of its members. But this is not all the harm done by undesirable uniformity in schools. It also degrades the teacher's function, and converts his occupation, which should be varied and inspiring, into a killing routine, which runs its round in a single year. I do not know how a woman teacher of one class in a grammar-school grade, who goes year after year through the same prescribed routine with pupils previously made as uniform as possible, and to be turned out as uniform as possible, can maintain any intellectual freshness or enthusiasm in her work for more than five or six years. There are many persons who say that teachers in the graded schools ought not to serve more than ten years, at the outside, for the reason that they become dull, formal, and uninteresting; but if this be true, it is certainly the fault of the system rather than of the teachers. If we go higher in the educational hierarchy, the same objection to uniformity holds. What can be the intellectual fate of a man who, year after year, is compelled to read the same extracts from the same Greek and Latin authors with boys at about the same stage of their education, who present to him not a carefully cultivated diversity of power and attainment, but the greatest similarity which

the educational mill is capable of producing? Many of us can recall college teachers who went over the same text-book with the Junior class in college every year for twenty years, making year after year the same hopeless effort to develop an interest in the subject in students who felt no attraction toward it, to drive the unwilling to make some attainments in it, however slight, and at the same time to satisfy those who had some aptitude for the subject in hand. It was a task well calculated to blunt the keenest enthusiasm, to destroy all pleasure in teaching, and to dull the mental faculties and scholarly aspirations of the victim. The main interest in the teacher's life is to be found in studying and developing the infinitely various mental and moral qualities of his pupils. A rigid, uniform programme, alike for all pupils, deprives the teacher of ready access to this most interesting field of his calling; and this degradation of the business of teaching is one of the most mournful results of undesirable uniformity in schools. A teacher who is to preserve his mental freshness and enthusiasm must seek to vary his teaching as much as possible from year to year, and to cultivate intimate contact with pupils whose infinite variety he recognizes and takes pleasure in developing. This principle applies just as well to the primary-school or grammar-school teacher as it does to the university professor. If it be observed, the teacher's life can never become monotonous, dull, or depressing.

It is proper here to recognize the obvious fact

that, whereas twenty years ago the tendency in American schools was toward stricter grading, simultaneous promotions, and uniform prescribed programmes, the tendency in later years has been toward freedom and variety. Witness the introduction of English sides, or courses, into the old classical academies, the subdivision of the single high-school course into three, four, or even nine parallel courses, and the recent introduction of heretical options into the sacred grammar-school grades. We begin to hear a good deal about loose grading, and flexible classification, and frequent, irregular promotions. It begins to be recognized that close grading and stiff classification are not good things, but evil, and that uniform programmes, gradings, and promotion examinations are, at bottom, merely economical mechanical inventions which enable a city or large town to get tolerable school results from a large number of inadequately educated and poorly paid teachers, who are directed by a small number of better trained and more experienced principals and superintendents. One of the most encouraging school papers that has appeared of late years is the valuable report of Dr. Emerson E. White of Cincinnati, on "Promotions and Examinations in Graded Schools"—a paper which not only describes evils, but also suggests remedies.

But is not a school or a college necessarily a machine in some degree? Is it not an organization for dealing as intelligently and effectively as possible with large numbers of pupils, who must be

sorted, classified, and drilled on general principles, in masses, and not as individuals? Is not a school inevitably conducted with fixed hours of instruction in fixed subjects, with examinations long anticipated and prepared for, with uniform standards, and therefore with uniform means of enabling large numbers of pupils simultaneously to reach those standards?

All these questions must be answered in the affirmative, but with careful qualifications. A school or college must be a machine in some degree. Let it be to the least possible degree. Let us avoid to the utmost cast-iron rules, arbitrary enactments, and uniform prescriptions. Of course classification is necessary in every large school or college. Let it be as flexible and as frequently renewed as possible. Tests of faithfulness and of mental condition are also necessary at stated periods; but these tests should be directed to ascertaining what the pupils can do, rather than what they know. There must be examinations, anticipated and unanticipated. Let them always be conducted by the teacher, for the teacher, and as helps and guides in teaching and in learning. The teacher needs to ascertain, from time to time, by such tests, how his instruction has been assimilated by his class; and the pupils need to learn from them what the teacher expects of his class. Of uniformity in subjects, in the periods allotted to each subject, and in minimum standards, I propose to treat in the second part of this paper.

The best way to avoid undesirable uniformity in

schools is to push steadily toward the individualization of instruction by reducing the number of pupils assigned to one teacher. The larger the number of pupils assigned to one teacher, the greater the inevitable uniformity of method and pace, and the smaller the account that can be taken of individual peculiarities, good or bad. If one woman teacher has from fifty to sixty pupils to deal with from nine o'clock in the morning until one o'clock in the afternoon, she is little likely to have leisure to attend to the peculiar capacities or the peculiar defects of individual pupils, and a semi-military, machine method becomes inevitable. Such conditions may well make one contrast the graded urban school of to-day with the old-fashioned rural school of thirty years ago, to the advantage of the latter. In the New England village school of forty pupils the college undergraduate then taught a dozen classes. The pupils were at every stage of progress, and the bright boy or girl could pass rapidly from one class to another, under the guidance of a sympathetic young teacher, whose work was various, and whose interest was keen in the progress of all his earnest and capable pupils. To the individualization of instruction will be added, in time, the careful study of each pupil's temperament, constitution, and mental aptitudes and defects, by some method like that so well described and practised by Superintendent Frye of San Bernardino.

2. I turn now to consider desirable uniformity in schools; for there is such a thing, and it has

great importance in a system of public education extending from infancy to manhood and womanhood. Although it may not be best for all children to study algebra, geometry, zoölogy, physics, or a foreign language, there is probably a best way of studying each of these subjects, which best way all the pupils who attack any one of them should follow. Moreover, it is altogether probable that there are certain topics within each of these subjects which all children who take up the subject at all should study; and the expedient limits of each one of these topics can probably be defined with a good degree of precision. Again, if it be worth while to teach a given subject at all, there is probably some ascertainable number of week-hours which may best be devoted to it through some ascertainable number of years. Thus, a convention of experts in teaching physics ought to be able to agree on the best topics in physics for beginners, the best mode of teaching the subject, and the number of year-week-hours which may wisely be devoted to it; they ought to be able to arrive at a similar agreement for the second stage in the study of physics, when the pupils, having mastered the elements, are ready for its more difficult problems; they ought to be able to agree how many topics can be advantageously taught to a class of twenty pupils, working six hours a week in the physical laboratory, and hearing three lectures a week, in the first, second, or third year of a progressive course on physics. If physics be one of the subjects which may be presented at college

admission examinations as part of the evidence of the candidate's fitness to pursue college studies, then teachers of physics in secondary schools, in conference with college teachers of physics, ought to be able to determine the reasonable limits of knowledge of that subject for a candidate for admission to college at the age of eighteen years. In like manner, if elementary plane geometry be one of the subjects taught in the seventh or eighth grade, it ought to be possible for experts to determine about how much geometry could advantageously be given to pupils of that grade, and in how many year-week-hours. Some pupils would do more than the advised amount; undoubtedly, others would find it impossible to master so much; but a minimum standard for a given grade could probably be agreed on. Without desiring that all pupils should study the same subjects, or should move at the same rate through any subject, and making ample allowance for the very various aptitudes for each subject in any given group of children, it must still be possible, by careful study and by comparison of views, to determine the reasonable limits up to which each subject should be pursued at a given stage of the individual pupil's advancement. One pupil may begin algebra at ten, another at eleven, another at thirteen; but whenever they begin algebra, if they devote a certain number of hours a week to it for a year, a reasonable minimum expectation of attainment within that first year can be established.

Conventions or agreements covering topics, time-

allotment, method, and appropriate tests for each of the subjects which enter into the grammar-school programme, and into the high-school and academy programme, are very desirable, in order to prevent waste of force and time at each of these levels of the system of national instruction. The grammar-school programme is the foundation of the high-school programme, and the high-school and academy programmes are the foundation of the college courses. Now, although it is wholly unnecessary that all the pupils who go from the grammar schools to the high schools in any year should have studied the same subjects, it is desirable that all high schools should be able to count on all grammar schools having taught a given subject in a given way, with a range and scope agreed on, and up to a minimum standard of acquired power in the subject. So, at the close of the high-school period, it is neither necessary nor desirable that all candidates for admission to colleges should have pursued the same subjects; but it is desirable that their attainments in those subjects which they have pursued should represent a tolerably uniform number of year-week-hours, and should normally cover a definite number of selected topics in each subject studied in an agreed-on method. This is by no means the case at present. For example, Harvard and Yale universities conduct admission examinations at a large number of American cities scattered over the country; but there are curious little diversities within the same subjects in the requirements of these two universities. Thus, they both

require Latin and algebra for admission; but every schoolmaster who presents candidates at both universities knows that the Yale requirements differ from the Harvard requirements, both in Latin and in algebra. The Association of Colleges in New England has done something to diminish the absurd diversities within the same subjects in the admission requirements of the twenty colleges of New England; but there stil' remain many unmeaning and trivial diversities of a very vexatious character. The diversities within the same subjects which the schools and colleges of the country at large exhibit are, of course, much more serious and numerous.

Now, the number of subjects which enter into grammar-school, high-school, and academy programmes, though somewhat formidable when we imagine the attempt made to define the proper limits of each for school purposes, is still distinctly small. Considering the immense expansion of knowledge within this century, it is remarkable how few subjects are used in a substantial way for primary and secondary education. The requirements for admission to Harvard College are more varied than those of any other institution, in the sense that the number of options permitted to candidates is larger than in any other institution. Yet the number of separate subjects is only sixteen. They are: English; Greek, elementary and advanced; Latin, elementary and advanced; German, elementary and advanced; French, elementary and advanced; history of Greece and Rome; history of the United

States and of England; algebra, elementary and advanced; plane and solid geometry; trigonometry; the elements of analytic geometry; astronomy; physics, elementary and advanced; and chemistry.

The options among these subjects are so wide that at every annual examination for admission from seventy to ninety different combinations of subjects are presented, and hundreds of combinations are possible; yet the examinations are conducted with perfect administrative ease, and with less labor and trouble on the part of the examiners than if one rigid set of sixteen examinations were prescribed for all candidates.

The Harvard requirements include at least two advanced subjects, that is, two subjects to which the candidates must have given several years of study, and which have, therefore, been pursued beyond the elements. In seeking a just variety of gates of admission to the higher education, some colleges and universities have given entrance to persons who present only a considerable variety of elementary subjects, without any advanced subjects; but such gates will always remain inferior to the traditional door of Latin, Greek, and mathematics, for the simple reason that they include no prolonged or advanced study of any one subject. The main reason why the ordinary programme of a so-called preparatory school yields a better training than the ordinary programme of a high school is that the pupil's attention is more concentrated, that the number of subjects is fewer, and that each subject

is carried further. It has long been supposed that the superiority of the preparatory schools was due to the fact that Latin and Greek were there studied; but my conviction is that their superiority is due chiefly to the concentration of work on a few subjects, and that many other subjects, if given as large a share of the pupil's time as the Classics have had, would yield as good a result. However that may be, we may be sure that to study botany, zoölogy, geology, physiology, physics, chemistry, and astronomy, all taken together, in the scientific course of a high school for only the same time devoted to the single subject of Greek in the classical course will not yield so valuable a training as to study the Greek. We may be sure that to study French two years and German one year three times a week will not yield so good a linguistic training as to study either language three years three times a week. In order to get good discipline out of any subject at the age of fourteen to eighteen, it must be pursued beyond its mere elements; there must be prolonged and advanced study of it.

The admission requirements at Michigan and Cornell universities illustrate, in another way from that which obtains at Harvard, variety for the individual candidate, procured through a few different combinations of a moderate number of subjects. Thus, at Cornell University there are four distinct groups of admission requirements, the first and most difficult composed of eleven subjects, the second of twelve, the third of eight, and the fourth and easiest composed of ten subjects. To make these

four groups only fifteen separate subjects are used. At the University of Michigan there are five distinct groups of admission requirements, containing from nine to thirteen subjects each, but using twenty-one separate subjects in all. The reason for the larger number of separate subjects at Michigan is this: to keep nearer the high schools, Michigan permits candidates to present, among other things, a selection from seven scraps of subjects, no one of which is supposed to be pursued for more than half a year.

Now, it is not desirable that all the American colleges should have the same requirements for admission, or that any college should have but a single set of requirements; but it would greatly facilitate the work of secondary schools if all colleges and universities should agree on the limits of each subject which enters into their requirements for admission, on the time to be devoted to it at school, the proper method of teaching it, and the fairest way of testing the student's knowledge of it. So much uniformity is desirable, and it is by no means unattainable. If four or five of the leading universities, such as Harvard, Yale, Cornell, Michigan, and California, should enter into an agreement on this subject, the work of the important secondary schools would, in all probability, be gradually conformed to the recommendations of the universities. At present the subjects which enter into the ordinary grammar-school grades are few in number, so that for these grades an agreement could be reached with more ease than for

high schools; but the advantages to be derived by high schools and academies from an agreement for grammar schools, covering the points above mentioned, would be great — particularly by academies, because they receive pupils from many widely separated communities.

The great field, however, for the profitable application of the doctrine of uniformity by subject is public secondary education. The number of subjects which enter into the four years' course of many high schools in this country is large in comparison with the number used in grammar schools; but this four years' course is very commonly divided into three sections,— classical, Latin, and scientific,— within which a considerable number of options occur, so that no individual student is compelled to study all the subjects which enter into the course or courses. The following list, which is made up from the programmes of a considerable number of high schools situated in different parts of the country, is believed to contain all the subjects from which high-school programmes are now commonly made up:

1. English —
   Including both literature and composition, and therefore comprehending the elements of rhetoric.
2. History —
   Ancient, mediæval, and modern.
3. Civil government.
4. French.
5. German.
6. Latin.
7. Greek.
8. Arithmetic.
9. Algebra.
10. Plane geometry.
11. Solid geometry.
12. Trigonometry.
13. Analytic geometry.

14. Physical geography.
15. Geology.
16. Botany.
17. Zoölogy.
18. Physiology.
19. Physics.
20. Chemistry.
21. Astronomy.
22. Psychology.
23. Moral philosophy.
24. International law.
25. Political economy.
26. Science of education.
27. Music.
28. Drawing.
29. Stenography.
30. Bookkeeping.

After all, these subjects are but thirty in number, and it ought not to be beyond human wisdom to lay down the approximate limits of each subject for the years between fourteen and eighteen, the right method of study in each subject, and the proper number of year-week-hours to be devoted to each. It does not seem impossible that a board of experts should agree that a few of these subjects are desirable for all pupils, but that the great majority of them should be optional subjects. Perhaps there are in the list some subjects which such a board would agree ought not to be included at all in a course intended to cover the years from fourteen to eighteen, unless, indeed, as reading matter.

In the whole course of organized education, from five years of age to twenty-five, the public high school presents the greatest difficulty for the attainment of uniformity by subject. Since the adoption of the elective system by all the principal colleges, the variety of subjects attempted in the high school by the individual pupil is greater than in any other institution, considering the

shortness of the course; and from necessity most of the subjects are treated only in their barest elements. The old-fashioned curriculum in the American colleges was just such another exaggerated group of elementary subjects; but that was partially redeemed by the fact that Latin, Greek, and mathematics had already been studied for several years by students admitted to college, and that these three subjects were insisted on during the greater part of the college curriculum.

There is much to be said in favor of the growing practice of organizing a city school system in twelve grades, without dividing these grades into groups called primary, grammar, and high. Among other advantages gained, uniformity by subject and variety for the individual pupil are both facilitated by this arrangement. It makes it easier to provide that the twelve grades may be finished in nine, ten, eleven, or twelve years. There is no real division corresponding to these three traditional groups, and the nomenclature which implies a division probably has some effect to diminish the proportion of pupils proceeding to the upper grades.

The introduction of new subjects into the grammar-school course — already begun in many places with vigor and prompt success — is going to affect very favorably the high-school programmes, and will bring us perceptibly nearer to the realization of the only truly democratic school principle — every grade to provide the best possible power-training for every pupil at his stage of progress, no matter at what age his education is to end. More infor-

mation can never compensate, at any age, for less power. To give children whose training is to be short a poorer education for power, just because their years in school are to be few, is surely to add injury to misfortune. The enrichment of the grammar-school grades means options for the individual pupil, and probably means also a differentiation among the grammar schools of the same town or city. Either of these improvements will reduce undesirable uniformity and promote the advent of the desirable.

Our governmental institutions supply no broad authoritative supervision of education. The national government has no function of that sort. Some of the newer States have a State superintendent and county superintendents; but the authority of these officers is often limited, and their tenure brief and uncertain. Many of the older States have no such officers. In the main, the administration of education is local, each town or city being independent as regards school administration. Accordingly, the best hope of exerting an influence throughout the nation over school and college programmes is through the voluntary action of a few experts in each subject of instruction, who can command the coöperation of institutions which have obtained an acknowledged preëminence, and can act under the sanction of an association having a national organization.

As encouragements in an undertaking which looks arduous, I will mention four interesting instances of considerable changes brought about

in the United States by the voluntary coöperation of a few competent persons and corporations — one in practical affairs, and three in educational. The change in practical affairs was the adoption of the "standard" time across the continent. This improvement was brought about by some of the principal railroads, acting on the advice of a few astronomers. It was the work of a small number of strong corporations, and of a few experts; yet it affected the daily lives of almost all the people of the United States, and in those sections where the standard and the local time differ by nearly or quite half an hour the population was distinctly inconvenienced by the change.

The first of the educational changes to which I refer was the early replacement of Euclid in American schools and colleges by much simpler geometries translated from the French. This great improvement was achieved by a few mathematical teachers in leading institutions. In England Euclid was retained for two generations after it had practically ceased to be used in this country.

A second interesting result of effective leadership in a few American colleges and schools is to be seen in the adoption of the so-called Roman pronunciation of Latin, which, being recommended by two or three professors of Latin in leading institutions, spread rapidly over the whole United States, and is now the accepted pronunciation in most schools and colleges. In sharp contrast to this result is the actual state of things in England, where the professors of Latin at Oxford and Cam-

bridge united in recommending the adoption of the new pronunciation more than twenty years ago, but their recommendation has as yet had scarcely any effect in English schools and colleges.

The third educational change which has proceeded from a few centers in this country, and yet has been rapidly and widely adopted, is the substitution of the laboratory method for the book method in teaching natural science. This is the most important improvement in educational methods during the past twenty years; for it gives science, for the first time, a fair chance in the competition among subjects as discipline. It yields the real training which science is adapted to furnish, whereas the book method yielded nothing characteristic of science, and for memory training, science, so studied, was inferior to history, grammar, and literature.

I urge, then, that uniformity in schools is undesirable so far as it means uniform subjects, gait, and pace for individuals; that it is desirable so far as it means selection of all the subjects which may wisely be included in the successive grades, either for all pupils or for some pupils, definition of those subjects, determination of the average or ordinary time to be devoted to each subject, and prescription of the methods of instruction appropriate to each. And, finally, I believe that the most hopeful way of bringing about that desirable uniformity is through recommendations as to selection, definition, time-allotment, and method, which proceed from judicious experts acting under

the sanction of a national association like this, to be soon adopted provisionally by a few leading cities and institutions, and to be constantly improved by coöperative experimentation in many institutions and school systems, year after year, in all parts of the country.

THE GRAMMAR SCHOOL OF THE FUTURE.

Massachusetts State Teachers' Association, December, 1893

THE GRAMMAR SCHOOL OF THE FUTURE

IN the first place, we must think of the mechanical conditions of the grammar school of the future. There are some large improvements for which we hope; we hope for more fresh air within the buildings; for moderate temperature and abundance of light. These are necessary conditions for healthful mental activity: good air, good light, and, every hour or two, out-of-door exercise. I believe the grammar school of the future will have about it a large piece of open ground. Even in our densest cities this is entirely a question of dollars and cents; and I believe that when the American people clearly perceive that a certain expenditure is necessary for the welfare of the great mass of American children, they will find a way to make that expenditure. Therefore I believe that there will be open ground about the grammar school of the future, whether in the city or the country.

And now for another grammar-school improve-

ment that needs more explanation. When the teacher and children have gone out of the building, there is generally nothing left in it except the furnaces and the furniture — no valuable apparatus, no considerable number of books, and no collections. Here, I think, we come upon a great difference between the actual grammar school and the grammar school that is to be. It is only of late years that we have come to perceive that nothing, absolutely nothing, can be well taught without good appliances. I believe that the grammar school of the future is to have a large assortment of apparatus of various kinds. To begin with, it will have books. We are getting over the opinion that children can learn, or teachers teach, from one small text-book. We realize that every subject needs to be illustrated, for both teacher and pupil, by many and various books. We already know this of literature. But can history be taught successfully to children from six to fourteen years of age without an illustrative library of books? Mr. Morss has just shown us how the elementary teaching of natural history can be done in the fields; but long before a child leaves the grammar school he should have access to a considerable number of books on natural history; not to commit to memory,— far from it,— but to delight himself with them. There is no subject that does not require its apparatus for teaching. To teach chemistry with good results in our high schools a certain amount of simple apparatus is necessary. The same is true of physics. We have heard here,

this afternoon, that simple apparatus is necessary for even so highly theoretical a science as geometry. It must be first taught by the concrete method, and the pupils will need instruments for measuring and tools for drawing. What will the grammar school of the future contain for the teaching of geography — that subject which holds within its comprehensive circle all other natural-history subjects, through which children should be introduced to botany, geology, and meteorology, and without which history cannot be taught with satisfaction — the subject that must be brought home to the child's mind in order that he may comprehend what we mean by "our country"? It is extraordinary what interest and training-power are imparted to geography simply by the addition of one means of illustration, namely, photographs of scenery. There is no point in reference to the formation of plains and plateaus, of mountains and valleys, of lakes and rivers, which cannot be beautifully illustrated by photographs. I say, therefore, that the grammar school of the future will have within its walls a large assortment of models, charts, maps, globes, and photographs for the teaching of geography. It will also have collections of typical objects in the various branches of natural history. All subjects need to be dealt with concretely for the child, first by actual objects, then by representations and descriptions of objects. In order to do this, we need in all subjects the means of illustration. I believe, therefore, that the grammar school of the future will be a rich museum —

by no means empty when its pupils and teachers leave it.

This, again, means the expenditure of money. And how can we hope to acquire for the grammar school these costly materials? Does not the grammar school cost more now than the public is willing to pay? Is not the expense of new appliances a constant obstacle? Let me point out, from the experience of many years in the conduct of a university,— and of a university which has never been anything but poor in comparison with what it was seeking to accomplish,— that all these things can be gradually added with a moderate annual expenditure, and that the tendency of recent years is to decrease their cost. Physical apparatus, for example, does not cost now more than one fifth of its cost ten years ago.

I come now to another matter, which may be said in a certain sense to be mechanical, but which is much more than that. If we go into any room in a highly graded grammar school in any American city, we are apt to find from fifty to sixty children under the charge of a single teacher— ordinarily a young girl whose experience in teaching has been short and will be short. Now, I have been looking for a good many years at university teaching — the teaching of persons much older than grammar-school children, even twice the age of grammar-school children, and in a great variety of subjects — in all the languages and sciences, and in history, philosophy, law, medicine, and divinity;

but never have I seen a university teacher trying to deal five hours a day with as many pupils as are put before every young grammar-school teacher in the city of Boston, for example. And these teachers in the University, who would never think of tackling such a job as confronts the grammar-school teacher, are men of high training, large experience, and great earnestness. It is obvious that the young woman with fifty to sixty pupils before her is attempting what no mortal can perform — particularly if we suppose the teaching in the grammar school is going to be of the kind which all the speakers here to-day have been describing and pointing out as desirable. I suppose it is practicable for one young woman to hear the lessons out of one book of all the fifty children before her during the hours of the grammar-school session, and keep a certain amount of watch over the children who are not reciting their lessons, provided the grading is almost perfect, and we are going to be satisfied with "uniform" results. But the new teaching is of quite a different character. It requires alertness, vitality, and sympathetic enthusiasm. It is exhausting. Virtue goes out of the teacher at every moment. What is the possible remedy? To double the number of teachers would not be too much; for twenty-five or thirty pupils are quite enough for one teacher to grapple with. The individual requires teaching in these days, and no teaching is good which does not pay attention to the individual. The interest of the pupil

is to be developed. We are coming to accept the doctrine that no teaching is good which does not awaken interest in the pupil.

But we must admit that to double the number of teachers is not a practical aim, at present, in most grammar-school systems, whether in the city or in the country. We cannot hope for that desirable result within a generation. We ask, therefore, is there no other possible solution of this serious difficulty? Two suggestions may, I think, be made on this subject, which I derive in both instances from experience at the University. I observe that the same suggestions might be made from the other end of the educational system, the kindergarten.

At Harvard University we recognize that every individual pupil should be looked after, his wants provided for, his hopes and ambitions borne in mind. The professor can set before a whole class in an hour an outline of a course of study that will occupy them a month. He can indicate the direction of their daily work. He can fill them, if he has it in him, with the enthusiasm which is to carry them on for a month. That much of personal direction can be given to a large number by a single teacher. But when it comes to supervision of the daily work of a large number of students, the single professor is altogether inadequate. At the University we provide assistants. We began this in the laboratories — the old-fashioned laboratories for physics and chemistry. We have now extended it to all departments. This method works well throughout the University. These assistants are

young graduates who have been through these very courses, generally under the guidance of the same professor whom they assist. They meet the principal teacher weekly or daily, and get their entire guidance from him. I describe this university method because I think it is applicable to the entire school system, though perhaps it would not work well under the present system of appointing school-teachers; for there must necessarily be very close coöperation and sympathy between the principal teacher and his assistants. I am not prepared to say that the selection of the assistants by any one except the leading teacher would work well. That is the practice at the University.

One other suggestion may be made to meet the immense difficulty which we have under consideration. It is that the principal teachers in any urban school system, and superintendents in any school system, urban or rural, should take the part of the professor leading a class. I believe that the schools need many more highly trained and experienced teachers than they now have, and that these principal teachers can work advantageously in many schools on the departmental plan. We see the beginnings of this method in the practice of employing special teachers in special subjects, and directors for departments of instruction. This system would involve more men teachers than are at present employed.

The conferences on secondary education which met last December recommended a great extension of the subjects which are used in the grammar

school of to-day, and the correlation of those subjects in teaching, so that all teachers may take an interest in several subjects. This recommendation would bring into the grammar school many subjects now belonging to the high school; and this change would cause the greatest possible improvement in the grammar school of the future. It would make it a good school for pupils of all destinations, and not, as now, only a school for pupils whose destination is of the humblest. Yet it is now the only school for ninety-five per cent. of American children. In a democracy the public schools should enable any child to get the best training possible up to any year, not for the humblest destinations only, but for all destinations. This is the true view of the grammar school. That is the true distinction between the American grammar school as it should be, and every European popular school that exists. European class schools are unfit for imitation in this country, simply because they are class schools, while what we want is a school for the mass.

There are various methods of rescue or escape from the grammar schools now in use in the United States. Notably, there is one in Boston, through early admission to the Latin School and the high schools. But the American grammar school of the future will make that the rule which is now the exception — every child without special favor to get at the right subject at the right age, and to pursue it just as far and as fast as he is able to travel. There must be a possibility of progress

at different rates, and an abandonment of uniformity as a school aim.

I look, therefore, in the grammar school of the future for a departure in one important respect from the principles which have dominated the American grammar school for a generation past. I look for this improvement because I believe that the American people are disposed to apply in practice, at whatever cost, principles which they believe to promote equality of opportunities for children of equal capacities. I believe that the American people accept, as one just definition of democracy, Napoleon's phrase, "Every career open to talent"; and I believe that this saying will fairly characterize the grammar school of the future.

THE UNITY OF EDUCATIONAL REFORM

"Educational Review," October, 1894

THE UNITY OF EDUCATIONAL REFORM[1]

THE Report of the Committee of Ten has now been in the hands of the teachers of the country for about six months, so that there has been time to formulate and publish some criticisms and objections. I propose to comment in this address on one criticism or objection which, in various forms and by several different persons, has been brought before the educational public. Whenever I speak of the Report I intend to include the reports of the conferences as well as the proper report of the Committee of Ten; for the chief value of the total report lies in the conference reports.

The objection to the Report which I shall discuss is contained in the question, "What do college men know about schools?" Those who urge this objection say, in substance: "More than half the members of the conferences were at the moment in the service of colleges and universities, and the

[1] Before the American Institute of Instruction at Bethlehem, New Hampshire, July 11, 1894.

same was true of the Committee of Ten. The wise management of schools for children from six to eighteen years of age is a different business from the wise management of colleges and universities. Not only is the age of the pupils different, but their mode of life and the discipline they need are also different. The mental capacity of young children is low, compared with that of college students, their wills are weaker, and their moral qualities undeveloped. How can men who teach and govern young people of from eighteen to twenty-four years of age know anything about schools for children? Let them attend to the higher education, and not attempt to teach experts in elementary and secondary education how to conduct their very different business. That a man has succeeded in conducting a college or a university makes it altogether probable that his advice will be worthless as to the best mode of conducting a school, or a system of schools. We school superintendents and principals have to handle masses of average material; your college and university teacher has only a small number of exceptional individuals to deal with."

To meet this objection, I wish to affirm and illustrate the proposition that the chief principles and objects of modern educational reform are quite the same from beginning to end of that long course of education which extends from the fifth or sixth to the twenty-fifth or twenty-sixth year of life. The phrase "educational construction" would perhaps be better than the phrase "educational reform"; for in our day and country we are really constructing

all the methods of universal democratic education. We seldom realize how very recent and novel an undertaking this educational construction is. As a force in the world, universal education does not go behind this century in any land. It does not go back more than twenty years in such a civilized country as France. It dates from 1871 in England. Plato maintained that the producing or industrial classes needed no education; and it is hardly more than a hundred years since this Platonic doctrine began to be seriously questioned by social philosophers. It is not true yet that education is universal, even in our own land; and in all lands educational practice lags far behind educational theory. In this process of educational construction, so new, so strange, so hopeful, I believe that the chief principles and objects are the same from the kindergarten through the university; and therefore I maintain that school-teachers ought to understand and sympathize with university reform and progress, and that college and university teachers ought to comprehend and aid school reform and progress. Let us review together those chief principles and objects, although in so doing I shall necessarily repeat some things I have often said before.

1. The first of these objects is the promotion of individual instruction, that is, the addressing of instruction to the individual pupil rather than to groups or classes. At present the kindergarten and the university best illustrate the progress of this reform; but the beneficent tendency is clearly

exhibited all along the line. In elementary and secondary schools the effort is constantly made to diminish the number of pupils assigned to one teacher; and in some fortunate secondary schools the proportion of pupils to teachers has already been intentionally made as favorable as it has incidentally become in the most prosperous universities which have been adding rapidly to their advanced courses of instruction. In urban school systems the number of pupils assigned to a teacher is recognized as the fundamental fact which determines, better than any other single fact, the quality and rank of each system among those with which it may be properly compared. Into the curricula of schools and colleges alike certain new matters have of late years been introduced, for teaching which the older methods of instruction — namely, the lecture and the recitation — proved to be inadequate, or even totally inapplicable. These new matters are chiefly object-lessons in color and form, drawing and modeling, natural sciences like botany, zoölogy, chemistry, physics, mineralogy, and geology, and various kinds of manual training. In school and college alike the really effective teaching in all these subjects is that which is addressed to each individual pupil. All laboratory and machine-shop teaching has this character, no matter what the subject. The old-fashioned method of teaching science by means of illustrated books and demonstrative lectures has been superseded, from the kindergarten through the university, by the laboratory method, in which each pupil,

no matter whether he be three years old or twenty-three, works with his own hands, and is taught to use his own senses. General explanations and directions may be given a class, but in the laboratory each individual's work must be separately supervised and criticized. There is nothing more individual than a laboratory note-book. In all laboratory and machine-shop work the rates of progress of different pupils vary widely. Quicker eyes, defter hands, greater zeal, and better judgment will tell, and the teacher has every opportunity to discover the natural gifts or defects of the different pupils, and to develop the peculiar capacity of each mind. All the artistic subjects, as well as all the scientific, require individual instruction. In drawing, painting, and modeling the instruction is, of necessity, individualized. It is one of the best results of the introduction of manual training that each pupil must receive individual criticism and guidance. The instructor is compelled to deal with each pupil by himself, and to carry each forward at his own rate of speed. In short, manual training breaks up class-room routine, and introduces diversity of achievement in place of uniform attainment. I say that this principle applies all the way from the kindergarten to the professional school. It applies conspicuously in medical instruction; and within twenty-five years it has been there applied so successfully that it is no exaggeration to say that within this period the whole method of teaching medicine has been revolutionized throughout the

United States. It is now universally recognized that it is impossible to teach medicine and surgery to large numbers of persons simultaneously by general descriptions, or by the use of diagrams, pictures, or lantern slides which many can see at once. Not that illustrated lectures and general demonstrations are wholly useless, but they hold only a subordinate place. The really important thing is individual, personal instruction, under circumstances which permit the student to see and touch for himself, and then to make his own record and draw his own inferences. Finally, the highest type of university teaching — the so-called seminary or conference method — is emphatically individual instruction.

It is hard to say at what stage of education, from the primary grade to the final university grade, the individualization of instruction is most important. The truth is that the principle applies with equal force all along the line. For the university president, the school superintendent, and the kindergartner alike it should be the steady aim and the central principle of educational policy; and whoever understands the principle and its applications at any one grade understands them for all grades.

2. Secondly, let me ask your attention to six essential constituents of all worthy education — constituents which, in my opinion, make part of the educational process from first to last, in every year and at every stage; and let me ask you particularly to consider which of these constituents

belong to schools but not to colleges, or to colleges but not to schools.

The first constituent is the careful training of the organs of sense, through which we get incessant and infinitely diversified communications with the external world, including in that phrase the whole inanimate and animate creation with all human monuments and records. Through the gate of accurate observation come all kinds of knowledge and experience. The little child must learn to see with precision the forms of letters, to hear exactly the sounds of words and phrases, and by touch to discriminate between wet and dry, hot and cold, smooth and rough. The organs of sense are not for scientific uses chiefly: all ordinary knowledge for practical purposes comes through them, and language, too, with all which language implies and renders possible. Then comes practice in grouping and comparing different sensations or contacts, and in drawing inferences from such comparisons — practice which is indispensable in every field of knowledge. Next comes training in making a record of the observation, the comparison, or the grouping. This record may obviously be made either in the memory or in written form; but practice in making accurate records there must be in all effective education. Fourthly comes training of the memory, or, in other words, practice in holding in the mind the records of observations, groupings, and comparisons. Fifthly comes training in the power of expression — in clear, concise exposition, and in argument, or the

logical setting forth of a process of reasoning. This training in the logical development of a reasoning process is almost the consummation of education; but there is one other essential constituent, namely, the steady inculcation of those supreme ideals through which the human race is uplifted and ennobled—the ideals of beauty, honor, duty, and love.

These six I believe to be essential constituents of education in the highest sense: we must learn to see straight and clear; to compare and infer; to make an accurate record; to remember; to express our thought with precision; and to hold fast lofty ideals. The processes I have described as separate often take place in the mind so rapidly that they, or some of them, seem to us simultaneous. Thus, intelligent conversation involves observation, comparison, record, memory, and expression, all in a flash. But if these be constituents of education, is not education a continuous process of one nature from beginning to end? Are not these six constituents to be simultaneously and continuously developed, from earliest childhood to maturity? The child of five years should begin to think clearly and justly, and he should begin to know what love and duty mean; and the mature man of twenty-five should still be training his powers of observing, comparing, recording, and expressing. The aims and the fundamental methods at all stages of education should, therefore, be essentially the same, because the essential constituents of education are the same at all

stages. The grammar-school pupil is trying to do the same kinds of things which the high-school pupil is trying to do, though, of course, with less developed powers. The high-school pupil has the same intellectual needs which the university student feels. The development of a mind may be compared with the development of a plant: it proceeds simultaneously and continuously through all its parts, without break or convulsion. If at any stage there seem to be a sudden leafing or blooming, the suddenness is only apparent. Leaf and bloom had long been prepared — both were infolded in last year's bud. From first to last, it is the teacher's most important function to make the pupil think accurately and express his thought with precision and force; and in this respect the function of the primary-school teacher is not different in essence from that of the teacher of law, medicine, theology, or engineering.

3. A considerable change in the methods of education has been determined, during the past twenty-five years, by the general recognition of the principle that effective power in action is the true end of education, rather than the storing up of information, or the cultivation of faculties which are mainly receptive, discriminating, or critical. We are no longer content, in either school or college, with imparting a variety of useful and ornamental information, or with cultivating esthetic taste or critical faculty in literature or art. We are not content with simply increasing our pupils' capacity for intellectual or sentimental enjoyment. All

these good things we seek, to be sure; but they are no longer our main ends. The main object of education, nowadays, is to give the pupil the power of doing himself an endless variety of things which, uneducated, he could not do. An education which does not produce in the pupil the power of applying theory, or putting acquisitions into practice, and of personally using for productive ends his disciplined faculties, is an education which has missed its main end. One humble illustration of the influence of this principle is the wide adoption of reading foreign languages at sight as a suitable test of fitness for admission to colleges. Another similar illustration is the use of question papers in geometry, containing a large proportion of problems which do not appear in explicit form in the ordinary manuals, but which can be answered or solved by making a simple application of the geometrical principles developed in those manuals. These are tests of acquired power. We think it reasonable to test a student of chemistry by giving him an unknown substance to analyze. Can he find out what it is, and prove his discovery correct? In other words, can he apply his information and knowledge of methods to a problem which is to him wholly unknown? Has he acquired not only information, but power? The whole field of natural science is available for that kind of training in power-getting, which it is the main object of modern education to supply. It is not what the student of medicine has heard about, or seen others do, but what he can do himself with his own eyes

and hands and with his own powers of comparing and judging, which will give him preëminence as a physician or surgeon. To give personal power in action under responsibility is the prime object of all medical education. This same principle, however, applies just as well in the primary school as in the professional school. Education should be power-getting all the time, from the beginning to the end of its course. Its fundamental purpose is to produce a mental and moral fiber which can carry weight, bear strain, and endure the hardest kinds of labor.

4. The next educational principle which I believe to apply to two thirds of the entire educational course between five and twenty-five years of age is the principle of the selection or election of studies. In the first three or four years of a child's education, say from five or six years of age to nine years, there are not so many possible subjects of equal value and necessity but that the child may pursue them all to some adequate extent; but by the ninth or tenth year of age more subjects will claim the child's attention than he will have time for, and thereupon arises the necessity for a selection of studies. As the child advances from the elementary school to the secondary school, and from the secondary school to the college, the number and variety of subjects from which to choose will rapidly increase, until in the department of arts and sciences of the university he will find that he cannot attempt to follow the twentieth part of the instruction offered him. Tables I and II in the

Report of the Committee of Ten demonstrate abundantly the absolute necessity for selection or election of studies in secondary schools, and even in the later years of the elementary course. Who shall make the selection? is really the only practical question. The moment we adopt the maxim that no subject shall be attacked at all, unless it is to be pursued far enough to get from it the training it is fit to supply, we make the election or selection of studies a necessity. This principle has now been adopted by all colleges and universities worthy of the name, and by the greater part of the leading high schools, academies, endowed schools, and private schools; but in these secondary institutions the principle is commonly applied rather to groups of subjects than to single subjects. The result is an imperfect application of the elective principle, but it is much better than any single uniform prescribed course. Finally, this principle has within a few years penetrated the grades, or the grammar schools, and has earned its way to a frank recognition at that stage of education.

It is no objection to the principle, and it establishes no significant distinction between college experience and school experience, that there must obviously be limitations of diversity of studies during school life. School programmes should always contain fair representations of the four main divisions of knowledge — language, history, natural science, and mathematics; but this does not mean that every child up to fourteen must study the same things in the same proportions and to the

same extent. On the contrary, representation of the different kinds of knowledge and mental action having been secured, the utmost possible provision should be made for the different tastes, capacities, and rates of progress of different children. Moreover, a main object in securing this representation of language, history, science, and mathematics in the earlier years of education is to give the teacher opportunity to discover each pupil's capacities and powers. There is, however, no ground of distinction between school-teaching and university teaching in respect to these special limitations; for if we turn to the very last stage of education, professional training, we find there a serious limitation on the principle of election — a limitation imposed by the necessity of giving all young lawyers, physicians, ministers, teachers, engineers, biologists, or chemists the considerable quantity of strictly professional information and practice which every future member of these several professions absolutely needs. Again, for the same reason, scientific or technological schools must for the present use a group system rather than a free election of studies. They must adjust their present instruction to current professional needs. The freest field for the principle of selection or election of studies lies between the ages of thirteen and twenty-three — including five or six years of school life and all of college life. School men and college men alike should rejoice in this free field.

5. The next rule of educational reform, which applies at every stage of the long course of educa-

tion that civilized society provides, relates to what is called discipline. Down to times quite within my memory, the method of discipline, both in school and college, was extremely simple; for it relied chiefly, first, on a highly stimulated emulation, and, secondly, on the fear of penalty. It had not been clearly perceived that an immediate, incessant, and intense emulation does not tend to develop independent strength of will and character good in either solitude or society; and that fear of penalty should be the last resort in education. It is now an accepted doctrine that the discipline of childhood should not be so different from that of adolescence as to cause at any point of the way a full stop and a fresh start. A method of discipline which must be inevitably abandoned as the child grows up was not the most expedient method at the earlier age, for the reason that in education the development and training of motives should be consecutive and progressive, not broken and disjointed. Herein lies one of the objections to whipping or other violence to the body, and to all methods which rely on the fear of pain or of artificial penalties or deprivations. There comes an age when these methods are no longer applicable. At eighteen there are no methods of discipline analogous to whipping, or to the deprivation of butter, sweetmeats, supper, or recreation, or to the imposition of verses to learn, or of pages of Latin or English to copy. If this sort of motive has been relied on up to eighteen, there will then be need of a whole new set of motives. For these reasons, among

others, the judicious teacher, like the judicious parent, will not rely in childhood, if he can help it, on a set of motives which he knows must inevitably cease to operate long before the period of education is ended. By preference, permanent motives should be relied on from beginning to end of education, and this for the simple reason that the formation of habits is a great part of education, and in that formation of habits is inextricably involved the play of those recurrent emotions, sentiments, and passions which lead to habitual volitions. Among the permanent motives which act all through life are prudence, caution, emulation, love of approbation,— and particularly the approbation of persons respected or beloved,— shame, pride, self-respect, pleasure in discovery, activity, or achievement, delight in beauty, strength, grace, and grandeur, and the love of power, and of possessions as giving power. Any of these motives may be over-developed; but in moderation they are all good, and they are available from infancy to old age.

From the primary school through the university, the same motives should always be in play for the determination of the will and the regulation of conduct. Naturally they will grow stronger and stronger as the whole nature of the child expands and his habits become more and more firmly fixed; and for this reason these same enduring motives should be continuously relied on. Obviously, then, there is no difference between men who manage colleges and men who manage schools in relation

to this important principle of educational reform. The methods of both should be identical; and the college man or the school man who does not guide and govern through the reason of his pupils, through their natural interest in observation, experiment, comparison, and argument, and through the permanent motives which lead to right conduct, is not in sympathy with one of the most humane and hopeful educational reforms of the present generation. All teachers who deserve the name now recognize that self-control is the ultimate moral object of training in youth — a self-control independent of temporary artificial restraints, exclusions, or pressures, as also of the physical presence of a dominating person. To cultivate in the young this self-control should be the steady object of parents and teachers all the way from babyhood to full maturity.

6. The next principle of educational construction to which I invite your attention is again one which applies throughout the length and breadth of education. It is the specialization of teaching. One might easily imagine that this principle had already been sufficiently applied in universities, and only needed to be applied hereafter in schools; but the fact is that the specialization of instruction is still going on in universities, and needs a much greater extension in American colleges and professional schools than it has yet received. Dr. Oliver Wendell Holmes was professor of anatomy and physiology in Harvard University down to 1871; and he really taught, in addition to these

two immense subjects, portions of histology and pathology. He described himself as occupying, not a chair, but a settee. The professorship in Harvard University which was successively occupied by George Ticknor, Henry Wadsworth Longfellow, and James Russell Lowell is the Smith professorship of the French and Spanish languages and literatures. In many American colleges we find to-day the same professor teaching logic, metaphysics, ethics, and political economy. Indeed, this was the case in Harvard College down to 1871, except that moral philosophy and Christian ethics were detached from the Alford professorship from and after 1860. The specialization of instruction is by no means completed in American colleges. It is better advanced now in American secondary schools than it was in the American colleges eighty years ago ; and it is just beginning to be developed in the American grammar schools, or grades, where it is generally spoken of as departmental organization. From the extension of this principle in American schools much is to be hoped within the next ten years, particularly for the teacher. To teach one subject to pupils at different stages, adapting the instruction to their different ages and capacities, watching their development, and leading them on, with due regard to individual differences, through four or five years of continuous progress, gives an inexhaustible interest to the teacher's function. To master one subject so as to be able to give both elementary and advanced instruction in it is for the teacher himself a deep source of

intellectual enthusiasm and growth. Real scholarship becomes possible for him, and also a progressive intellectual expansion through life; for only progressive scholars can maintain for many years the mastery of even a single subject. Does it seem to you an unreasonable expectation that teachers in the grades, or grammar schools, should possess this mastery of single subjects? Careful observation seems to me to give assurance that exceptional teachers, both men and women, already possess this mastery, and that what remains to be done is to make the exceptions the rule. Toward effecting this great improvement, two important measures are the elevation of normal schools, and the creation, or strengthening, of educational departments in colleges and universities. At any rate, there can be no doubt that this specialization of instruction is a common need from beginning to end of any national system of instruction, and that it is capable of adding indefinitely to the dignity, pleasure, and serviceableness of the teacher's life. Obviously this common need and aspiration should unite rather than divide the various grades of education, and should induce coöperation rather than cause dissension.

7. There is a fundamental policy in regard to educational organization which should unite in its support all teachers, whether in schools or universities — the policy, namely, that administrative officers in educational organizations should be experts, and not amateurs or emigrants from other professions, and that teachers should have large

advisory functions in the administration of both schools and universities. The American colleges and universities are better organized in this respect than the American schools. More and more, the heads of the institutions of higher education are men of experience in education itself or in other administrative services. The presidencies of colleges are no longer filled, as a rule, by withdrawing from the ministry men well advanced in life and without experience in teaching. The deans of the rather distinct schools which compose universities are usually men of experience in their several departments; and much power is exercised by the faculties of colleges and universities, these faculties being always bodies composed of the more permanent teachers. Moreover, in large colleges and universities all the teachers of a given subject are often organized into a body called a division or department, with a chairman chosen from among them as a judicious man and a distinguished teacher. These or similar dispositions need to be adopted throughout the large urban school systems. Superintendents should be educational experts of proved capacity; their assistants, whether called supervisors, inspectors, or assistant superintendents, should be organized as a council or faculty; and all the teachers of a single system should be associated together in such a way that by their representatives they can bring their opinions to bear on the superintendent and his council, or, in the last resort, on the committee or board which has the supreme control of the sys-

tem. The teachers of the same subject should also be organized for purposes of mutual consultation and support; and at their head should be placed the best teacher of the subject in the whole system, that his influence may be felt throughout the system in the teaching of that subject. Moreover, the colleges and the schools need to be assimilated in respect to the tenure of office of teachers. After suitable probationary periods, the tenure of office for every teacher should be during good behavior and efficiency.

In general, the differences of organization between colleges, on the one hand, and school systems, on the other, are steadily growing slighter. The endowed schools and academies already have an organization which closely resembles that of the colleges; and all the recent changes in the mode of conducting urban school systems tend in the good direction I have described. There is in some quarters a disposition to dwell upon the size of public-school systems as compared with the size of colleges and universities; but size is no measure of complexity. A university is indefinitely more complex than the largest city school system, and the technical methods of university management are more various and intricate than the technical methods of any school system. Independently of all questions of size or mass, however, administrative reform is taking the same directions in both colleges and schools: first, toward expert control under constitutional limitations; secondly, toward

stable tenures of office; and, thirdly, toward larger official influence for teachers.

Recalling now the main heads which have been treated,— namely, the individualization of instruction, the six essential constituents of education, power in action as the true end of education, the selection or election of studies, the appeal to permanent instead of temporary motives for controlling conduct, the specialization of teaching, and the right principles of educational organization,— do we not see that the principles and methods of educational reform and construction have a common interest for all teachers, whether connected with colleges, secondary schools, or elementary schools, and shall we not agree that there is something unphilosophical in the attempt to prejudice teachers, of whatever grade, against the recommendations of the Committee of Ten, and of the conferences that Committee organized, on the grounds that a small majority of the persons concerned in making them were connected with colleges, and that the opinions of college or university officers about school matters are of little value?

The plain fact is that there is community of interests and aims among teachers throughout all the grades into which the course of education is at present artificially divided. The identity of the principles which govern reforms and improvements at every stage is strikingly illustrated by the simultaneousness and similarity of the advances now being everywhere made. Elementary

schools, secondary schools, and colleges all feel similar impulses, and are all making similar modifications of their former methods. I can testify from personal observation that some of the administrative improvements lately made in universities resemble strikingly improvements made at the other extremity — namely, in the kindergartens. It is very noticeable that even some of the mechanical or business changes made in school administration — changes which were not supposed to have any bearing on the philosophy of education, or on new methods of teaching — have facilitated true educational reform. Thus, the method of transporting children, at public expense, to central grammar schools in a rural town, or to high schools in large towns and cities, has distinctly facilitated the introduction of departmental and elective instruction. Again, the purchase and free issue of books for pupils by towns and cities has facilitated the use of good literature instead of readers — an important contribution toward improving the teaching of the native language and literature by increasing interest in them and love for them. In like manner, the institution of departmental libraries — that is, of small working collections of books on the same general subject, deposited in a place by themselves, and always accessible to students of that subject — has made possible great improvements in the instruction of Harvard College and many other colleges.

The Committee of Ten declare, in their Report, that "it is impossible to make a satisfactory secon-

dary-school programme limited to a period of four years, and founded on the present elementary-school subjects and methods." In view of the rapid changes now going on in elementary-school subjects and methods, this declaration amounts to saying that the Committee's work on the four secondary-school programmes which they recommend has only a temporary interest. Tables I, II, and III of their Report have some permanent value; but Table IV, which contains the four programmes called Classical, Latin-Scientific, Modern Languages, and English, and which cost the Committee a great deal of labor, will surely be rendered useless by improvements in the elementary and secondary schools which may easily be accomplished within ten years. Some firm, lasting principles are embodied in Table IV, but the programmes themselves are only temporary trestlework.

If I were asked to mention the best part of the contribution which the Committee of Ten have made to the progress of American education, I should say that their general method of work was the best part,— the method of investigation and discussion by subject of instruction,— teachers and experts from all sorts of colleges and universities, and from all sorts of schools, public, private, and endowed, taking part in both investigation and discussion. The Committee's method of work emphasizes the community of interest at all grades, and the fact that experience at every grade is valuable for suggestion and counsel at all other grades. To my thinking, the present artificial and arbitrary

distinctions between elementary schools and secondary schools, or between grammar schools and high schools, have no philosophical foundation, and are likely to be profoundly modified, if they do not altogether pass away. In the same sense, I believe that the formal distinction between college work and university work is likely to disappear, although the distinction between liberal education and technical or professional education is sure to endure. I have never yet seen in any college or university a method of instruction which was too good for an elementary or a secondary school. The alert, inspiring, winning, commanding teacher is just the same rare and admirable person in school and in college. There is, to be sure, one important element of university work which schools and colleges cannot participate in, namely, the element of original investigation; but although this element is of high importance, and qualifies, or flavors, a considerable part of university work, there remains in all large universities, and particularly in those which make much of professional training, an immense body of purely disciplinary work, all of which is, or should be, conducted on principles and by methods which apply throughout the whole course of education. When it is a question how best to teach a given subject, the chances are that college or scientific-school teachers of that subject can help school-teachers, and that school-teachers can help college teachers. Moreover, it is important that each should know what the other does. I have observed, too, that even

when neither party is ready to venture on affirmative counsel, each is pretty well prepared to tell the other what not to do. Such negative counsel is often very useful.

On the whole, the greatest promise of usefulness which I see in the Report of the Committee of Ten lies in its obvious tendency to promote coöperation among school and college teachers, and all other persons intelligently interested in education, for the advancement of well-marked and comprehensive educational reforms.

MEDICAL EDUCATION OF THE FUTURE

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MEDICAL EDUCATION OF THE FUTURE[1]

I SHALL make no apology for asking your attention to some considerations which tend to show that the education of the physician should hereafter be much more thorough and extensive than it has been or is, and particularly that preliminary training should begin earlier and be made more substantial. Inasmuch as the help of many educated persons who are not physicians is indispensable to the accomplishment of the needed educational reforms, I shall ask leave to keep in mind on this occasion not only this professional audience, but also the non-professional multitude whose sympathy and aid we shall need. You will kindly see in this purpose the explanation of the fact that I shall mention, in the course of this address, many things already familiar to medical men.

The improvements in medical education have

[1] Address before the Medical Society of the State of New York, January 28, 1896.

been very great during the lifetime of the older men in this assembly, and perhaps some of my auditors may think that the changes already wrought justify satisfaction with present achievements, and a contented repose on laurels won. I wish to draw another moral from the improvements of the last twenty-five years — the moral, namely, that we should be encouraged by the great improvements already attained to work hopefully for improvements still needed. As an encouragement to further exertions, let me briefly contrast the conditions of medical education to-day with those of thirty years ago, mentioning only the rough typical facts, without entering into local details. Thirty years ago there were no requirements for admission to our medical schools. To secure admission a young man had nothing to do but to register his name and pay a fee. In consequence, a large proportion of medical students were persons who in youth had received a very scanty preliminary training. Hundreds of young men joined the medical schools of the United States who could barely read and write, and whose powers of observation and reasoning had scarcely been exercised at all, except in their sports or in the labors which had given them a livelihood. The total period of required school attendance for the degree of Doctor of Medicine did not exceed, in the best schools, three winter terms of four months each; and there were schools accounted respectable which had even a shorter total period than this. The main means of instruction were lectures, sur-

gical exhibitions in large rooms appropriately called theaters, rude dissecting-rooms with scanty supervision, and clinical visits in large groups. The lectures were repeated year after year with little change, and no graded course was laid down for the student to follow during the three consecutive winters. At graduation the examination was ordinarily entirely oral and very brief; and at Harvard, at least, every man got his degree who passed in a majority of nine subjects, every one of the nine being really indispensable. Under this system young men might receive the degree of Doctor of Medicine who had had no academic training whatever, and who were ignorant of four out of nine fundamental medical subjects at the time they received their degree. A majority of young medical practitioners were, therefore, uncultivated men, with scanty knowledge of medicine and surgery, who had had opportunity for but a small amount of observation by the bedside and but little practical experience in hospitals. It speaks volumes for the educating force of medical practice that out of such raw material there could be produced, in the course of years, so fair a proportion of skilful, humane, and successful practitioners. We have here a demonstration that medical study, contrary to a too common opinion, is to a man of ordinary intelligence and conscientiousness refining, developing, and uplifting. These excellent influences, however, it is the province of a well-conceived, systematic education to provide in youth, before practice begins.

The cost of a medical education at the period of which I speak may be fairly represented by about three hundred and fifty dollars paid to a medical school, to which sum should be added the student's board and lodging for about a year. During the other two years of the three which were supposed to be devoted to training in medicine, the student was ordinarily able to do something for his own support, or at least he was favorably situated in regard to the cost of board and lodging. The present conditions are very different. At the Harvard Medical School the cost of a degree in money is now about eight hundred and thirty-five dollars, besides laboratory charges; and the student must give four whole years to the school, except that during the three months of summer he may enjoy a vacation, or earn something toward his support, unless, indeed, he choose to take some of the many summer courses which are offered him. Accordingly, he has his board and lodging to provide for during thirty-six months of term-time instead of twelve. He is required to pass an examination at admission, which, though not comparable to the examination for admission to Harvard College, nevertheless proves that he has had some training in a secondary school. The Harvard medical student must, therefore, have had some educational profit out of his early years, although the standard in this regard is still altogether too low. No student can graduate until he has passed a satisfactory examination in every one of the prescribed subjects taught in the school, and in a small selection of

elective subjects. The subjects of instruction are arranged in a carefully graded course, which carries the student forward in an orderly and logical way from year to year through all four years. Moreover, the methods of teaching have undergone fundamental alteration. Thirty years ago there were only two laboratories in the Harvard Medical School — a dissecting-room, in which the manners and customs were as rough and unwholesome as the room and its accessories, and a little chemical laboratory in which no one was required to work. A small minority of the students voluntarily sought some laboratory training in chemistry. In our present medical school laboratory work of many sorts demands a large part of the student's attention. There are laboratories in anatomy, medical chemistry, physiology, histology, embryology, pathology, and bacteriology; and in all these some work is prescribed, and additional work is done by many. In clinical teaching, moreover, the change is great. Formerly a large group of students accompanied a visiting physician on his rounds at the hospital, and saw what they could under very disadvantageous conditions. Now instruction has become, in many clinical departments, absolutely individual, the instructor dealing with one student at a time, and personally showing him how to see, hear, and touch for himself in all sorts of difficult observation and manipulation. Much instruction is given to small groups of students, three or four at a time — no more than can actually see and touch for themselves. A four years' course of training

such as I have described has a high degree of training-power both for the senses and the reason. The old medical teaching was largely exposition; it gave information at long range about things and processes which were not within reach or sight at the moment. The new medical education aims at imparting manual and ocular skill, and cultivating the mental powers of close attention through prolonged investigations at close quarters with the facts, and of just reasoning on the evidence. These beneficent changes have been brought about within the lifetime of the youngest men here present, without shock to the community, or any serious loss to the medical schools or to any other class of educational institutions. Indeed, the medical schools have profited in all respects by the changes I have described, and the schools which have been most progressive have, in the long run, made the largest proportional gains, allowance being made for differences in their natural sources of student supply. If, therefore, in the course of this address I seem to you to be asking much of the coming generation, I may appeal confidently to the recent past as justifying high expectations for the future.

I proceed to describe and illustrate some of the new demands made on the student of medicine and the practitioner, in consequence of the many advances made since the Civil War in medical science and art. Before the war the microscope, stethoscope, ophthalmoscope, and laryngoscope were already in use, and had given new accuracy and

certainty to the diagnosis of some diseases; but within the thirty years just past the means of medical diagnosis have been multiplied and extended in many different directions, and some of these new means depend on sciences which hardly entered at all into the education of a physician two generations ago, and on manual and ocular skill, which only a small part of the present profession possesses. To understand thoroughly and use effectively these new means imply extensive acquisitions of knowledge and much practice in delicate and accurate manipulations and refined observations. To make plain to the comprehension of non-professional as well as professional persons the gravity of these new demands on the thoroughgoing student of medicine, I may mention as briefly as possible some of the comparatively new instrumentalities of diagnosis. (1) The recording thermometer, which has not yet been thirty years in common use, gives in many diseases definite warning of danger with a certainty which collateral symptoms do not possess. The diurnal variation of temperature in typhoid fever has furnished an almost certain method of diagnosis for that disease. Many of my hearers can remember when this invaluable instrument first came into general bedside use. (2) The examination of urine has taken on new forms, and has greatly improved in rapidity and certainty. Not only sugar, albumin, and casts are detected with certainty and with estimates of quantities, but the presence of biliary matter in the urine is observed, and of materials

of the blood, when destructive changes of internal organs are going on. Chemistry and microscopy conspire to make these determinations accurate and sure. (3) The microscopic examination of the blood is a new means of diagnosis of the utmost value. We may already say with confidence, no blood-parasite, no malaria; and it is quite within reasonable hope that the microscopic study of the blood-corpuscles may lead not only to a sure diagnosis, but to an improved treatment of these mysterious and wide-spread diseases to which the vague term "malarial" has so long been vaguely applied. The increase of white corpuscles in the blood also affords valuable diagnostic indications. (4) The microscopic discrimination between malignant and non-malignant tumors is another important gain in microscopic diagnosis. It is but recently that the microscopist has stood beside the operating surgeon to tell him whether a tissue close to the path of the knife is normal or abnormal, safe or unsafe to leave behind. It is but lately that the microscope has demonstrated that a large proportion of cutaneous diseases are absolutely characterized by parasitic growths, so that the particular parasitic growth present may be relied on for diagnosis. It is only within recent years that a bacteriological laboratory, and accommodations for animals kept for inoculation uses, have been considered useful adjuncts of wards for cutaneous diseases. (5) It is, however, to bacteriology that we owe the greatest improvements in medical diagnosis — a science and art so recent

that most of my auditors received their medical education before this subject entered at all into the curricula of medical schools. The extraordinary contributions of this science to medical art I can barely mention. It has already supplied a sure means of determining the presence of diphtheria, and an extraordinarily successful mode of treating that terrible disease. It has made sure the diagnosis of cholera, and holds out a good hope of arriving at successful treatment of that pestilence. It has isolated the bacillus of tetanus — a disease which has long been a reproach of medical science — and has pointed out the hopeful method of treatment. It has discovered the bacillus of tuberculosis, provided a sure test for tuberculosis in domestic animals which are in contact with man, and taught us much about the manner in which the disease may be communicated, although it has not yet achieved a successful method of treating the disease in man. The discoveries already made indicate general methods of research which should lead, in no long time, to great improvements in ordinary vaccination, and in the diagnosis and treatment of scarlet fever, erysipelas, and typhoid fever. It has also very much improved our means of discriminating between noxious and innocuous water-supplies and milk-supplies. The contributions of bacteriology to the medical art are all the more remarkable because its methods and processes are still enveloped in much mystery — mystery which teaches us to expect much from the further developments of the

new science as it gradually disperses the fogs which now envelop it. It should be mentioned, in passing, that bacteriology itself owes its existence to admirable recent inventions which are not at all biological, namely, the improved immersion lens and the ingenious methods of staining. These inventions made bacteriology possible.

What extensive fields of knowledge are familiarly utilized in these new methods of diagnosis — physics, medical chemistry, normal and pathological histology, and bacteriology, and, in addition, the various skills required in exact chemical, physical, and microscopic observation and manipulation! Every physician and surgeon ought to have been trained in youth — in good part before his strictly medical education began — in these subsidiary sciences and arts, and made capable of performing himself the operations involved in these new methods of diagnosis, of understanding the present state of these methods, and also of apprehending and mastering the fresh discoveries which every decade will surely bring. The physician or surgeon who does not know how to utilize these great discoveries will, at the best, become a dependent on somebody who does.

After diagnosis, there comes, in many cases, a painstaking search for the causes or sources of the disease — a search to be made by the physician sometimes for the patient's sake, but oftener for the benefit of his family or the community. This search has become during the last thirty years much more feasible. Pathological exploration has

taught us the approximate causes of several important diseases, and therefore has taught us where to seek their sources, although, indeed, the pure cultures of bacteriology do not occur in any such simple and isolated forms in the actual environment of man. We have learned much about the transmission of disease through drinking-water, ice, and milk. We understand better than ever before the intimate connection between some diseases of animals and diseases in man. We are put on our guard against the long-lived scales or flakes of scarlet fever, the sputa of tuberculosis, the stools in typhoid, and other excreta of diseased persons. Nevertheless, few physicians seem to be capable of tracing to its source an epidemic of typhoid fever, for example, or an outbreak of scarlet fever or diphtheria. I have been told, both in this country and in England, that this faculty is rare among physicians, so that health authorities are obliged to train specialists for such service. It seems as if every physician ought to be a guardian of the community in this respect, capable of rendering the promptest and most effective service at a moment's warning. Yet to be equipped for such service means thorough acquaintance with the most recent developments of preventive medicine, and with the newest methods of research which chemistry, physics, and biology have at command. Such duties are sometimes spoken of as extra-professional; but that term, so applied, seems to restrict the medical practitioner to the mitigation or cure of disease,

without recognizing his more important function in the prevention of disease.

The next duty of the physician is to give such careful attention to his patient's surroundings as to compass the removal of all hindrances to nature in its restorative processes. We have a much better conception than our predecessors of the nature of these hindrances, and, it may be added, of the nature of favorable surroundings. We know that a sick person is helped by every external condition favorable to health, and hindered by every adverse condition. The sick need, even more than the well, pure air, suitable food, and an exquisite cleanliness; yet how much knowledge, observation, and decision are necessary to the maintaining of sanitary conditions in any patient's dwelling — and particularly in luxurious dwellings filled with dust-holding moldings, hangings, upholstered furniture, thick carpets, and elaborate knick-knacks; or, at the other end of the social scale, in the dirty and crowded dwellings of the poor, too often built on land which is cheap because ill drained and unwholesome. Trust in drugs has greatly diminished during the past thirty years, while reliance on favorable surroundings has greatly increased. To secure favorable conditions is infinitely more difficult than to drug, and requires not only larger knowledge, but keener perception, together with a high degree of persuasive influence and authoritative persistence. The physician who desires to give his patient every possible chance of successfully resisting his malady

must take thought for the ventilation of his room and his bed, for the sources of the water he drinks and of the milk he takes, and for the disinfection of whatever comes in contact with the patient or is excreted by him; he must direct the admission of light and air, and determine the temperatures to which the patient shall be exposed. On all these points superstitions and thoroughly irrational practices have prevailed for generations, and the physician must often be at once the defender of his patient against artificial adverse surroundings, and the persuasive instructor of his kindred and nurses. The physician's care must not only compass isolation when isolation is needed, but adequate disinfection, and, if the issue be unfavorable, the proper treatment of the body which has succumbed to contagious disease. It is the constant function of the physician to teach just conceptions of contagion, and of the duties incumbent on the victim of contagious disease, and on those who take care of him. It is a natural consequence of this view of the importance of the patient's surroundings that nursing receives so much more attention in recent years than it formerly did. The Cambridge Hospital motto, "Man tends; God mends," expresses concisely the modern conception of the importance of surroundings.

The past thirty years have not been as fruitful in new methods of treatment as in new methods of diagnosis and of care of surroundings. They have been chiefly remarkable for great modifications of medical and surgical practices in conformity with

the general doctrine of asepsis. It is this doctrine, applied every year with greater and greater success, which has given surgery such prodigious extension during the period under consideration, and enabled it to invade successfully the province of medicine. It is fundamentally a doctrine of thorough cleanliness; but surgical cleanliness is an extreme application of the doctrine. In daily life we cannot all be constantly washing our hands in permanganate and then in oxalic acid; but we can all appreciate the hygienic value of cleanliness in our persons, dwellings, vehicles, offices, shops, and factories, and we can all see now the scientific grounds of some practices which have been authoritatively commended to mankind for thousands of years, such as the washing of the hands before eating. After the feats of abdominal surgery, the most extraordinary triumph of asepsis has been seen in obstetrics, the perils of childbirth having been apparently reduced, within the past fifteen years, to a small fraction of their former magnitude. We hardly yet realize what an immense benefit to the human race is this single result of the combination of discoveries and inventions which together make asepsis practicable. That the mortality of a lying-in hospital should have been reduced from thirty-three per cent. to one third of one per cent. gives but a faint picture of the beneficent results of these discoveries. It is clear, however, that the physician who thoroughly understands and practises asepsis in obstetrical cases has not only more knowledge than his pred-

ecessor of fifty years ago, who denied that puerperal fever was contagious, but also much more skill. He must be an adept in practices and manipulations which it never entered into the head of an obstetrician of the year 1860 to conceive of.

It is one effect of aseptic surgery that the treatment of not a few diseases has become much more expensive than it used to be; hence an inevitable increase in the expenditure of private persons for medical and surgical help, and a significant increase in the average weekly cost of hospital patients. A pain in the bowels, which formerly would have been economically treated by a physician, is now often treated by a surgeon, with a costly operation and several weeks' attendance by expensive nurses. A large saving of human life has, to be sure, resulted, but at inevitable cost for highly skilled labor. It is no inconsiderable attainment for a physician in ordinary practice to have learned when to call in a surgeon or other specialist, and this particular mode of practising keen observation and sound judgment is comparatively new. We have by no means reached as yet the limit of this substitution of surgical for medical treatment. We may expect to see the knife penetrate safely and effectively many portions of the human frame which the ordinary surgeon is still afraid to touch — such, for instance, as the lungs, and even the heart. It is not yet twenty-five years since I heard the most eminent surgeon of his day in Boston say, in language too strong to repeat, that, in his opinion, to attempt ovariotomy was

utterly unjustifiable. On every hand we see that the new methods in medicine and surgery demand not only more knowledge and skill in the practitioner, but more insight and sagacity, faculties to whose development nature and elaborate training must both contribute.

I have already said that the dependence on drugs has much diminished; but during the period which we are considering the number and variety of therapeutic agents have greatly increased, and there has been active experimentation on the virtues of these multifarious substances. The physician of to-day is solicited by numerous novel specifics, made attractive in form and flavor, and enthusiastically recommended by simple-minded persons who have tried them in their own bodies, and not infrequently by some physicians who share the common American fondness for a new thing. The multiplicity of these therapeutic novelties makes a new call on the physician for discriminating judgment and rational insistence on a real demonstration of the usefulness of the new agent. Where the physician of thirty years ago had need of this discriminating judgment once, the physician of to-day has need of it a hundred times.

The progress of preventive medicine has imposed on physicians a new class of duties, for the discharge of which a high degree of disciplined intelligence is required. They are the only persons in the community who can thoroughly understand and explain the established principles and

well-proved practices of preventive medicine, and they are therefore the most effective teachers of these principles and practices. The family physician should be responsible for the care of health even more than for the treatment of disease. It should be his function to give advice about the ways and means of healthy family life — about diet, sleep, fresh air, exercise, and habits of quietness and serene cheerfulness. Physicians must instruct the community in the new methods by which good public water-supplies are provided, tested, and preserved; and they must be equally familiar with the right methods of disposing of sewage, for the disposal of sewage is really a problem of pure water-supply. They must understand the restoration of polluted waters to a safe condition, through filtration, aëration, and dilution. Their judgment should be the final one in families concerning the safety of any given water-supply; and that judgment should be well founded on a general acquaintance with the subject and on all relevant local information. Physicians should also understand the general principles and most approved practices in ventilation; for ventilation is not only a means of promoting health, but also a means of defense, through dilution, against contagion and other noxious influences. Now, ventilation, in both public and private buildings, is in itself a very difficult subject, and one but recently developed in a practical way. As the mechanical construction of our buildings improves, they become tighter, and as heating contrivances become

more economical as regards the proportion of utilized heat to wasted heat they become less valuable as means of ventilation. The roaring fire in the wide chimney of our grandfathers made a great draft; the quiet but effectual coal-stove is an inferior means of ventilation. The more indoor the life of the population, the more important ventilation becomes to the public health. Who but the physician and surgeon can teach disinfection and cleanliness in the treatment of contagious diseases, or impress the population with the need of separating healthy children or adults from those afflicted with tuberculosis or other chronic contagion? Who else is to object to damp cellars filled with organic rubbish, to bad cooking and ill-chosen diet, and to all the manifold interior decorations with which houses are made more unsanitary? Who else can instruct the community in school hygiene, in the imperative need of thorough cleanliness throughout school buildings, of effective ventilation, of good privies, clean books, strong light, and furniture adapted to the sizes of the pupils? Who else is to teach inexperienced mothers that nothing but the most painstaking cleanliness can prevent the nursing-bottle from becoming a regular culture-apparatus for micro-organisms?

There is an infinite amount of teaching to be done in regard to all these subjects, and the medical profession are, in many communities, the only available teachers. In order to teach effectively the profession needs to be better trained than it

now is in the ordinary methods of influence — trained, that is, to a better power of persuasive writing and speaking, and to the habitual exercise of that authority which should accompany recognized knowledge and disinterestedness.

The public does not use its imagination sufficiently with regard to the future of preventive medicine. Leprosy and smallpox have been measurably conquered; it has proved possible to exclude cholera and yellow fever; and yet the public is not impatient for the conquest of every other infectious and contagious disease, and often not willing to provide the necessary means of deliverance from these evils. Some of the most intelligent communities refuse to establish public disinfecting stations. Bacteriological laboratories are few and far between, when they should be everywhere accessible. Pure water-supplies have diminished typhoid fever in urban populations, but the rural populations, through ignorance, still suffer disproportionately from this preventable scourge. The faith and hope of the medical profession should arouse the public from this lethargy, and redeem it from this destructive ignorance and incredulity; but that faith and hope need to be expressed with power.

By the laws of Massachusetts and many other States, an important duty is placed upon physicians, in that they may be called on at any time to testify to the existence of mental disease in persons whom it is proposed to commit to asylums. The first Massachusetts law which recognized that

insanity was a disease, the diagnosis of which required medical knowledge, was passed only about fifty years ago, namely, in 1844; and the existing laws concerning the recognition of insanity and the treatment of insane persons are of much later date. Insanity being an increasing evil, physicians have greater and greater need to understand its complex and elusive symptoms, that they may bear with honor the responsibilities the law imposes on them. In regard to all the defective classes — lunatics, criminals, drunkards, idiots, prostitutes, and paupers — society must be guided to wise palliative and remedial measures by highly educated, sympathetic, and public-spirited physicians. Experience shows that religious or philanthropic enthusiasm cannot deal effectively with these hideous social evils, unless controlled and guided by the physician's knowledge of their causes and sources, and of the preventives and remedies for them. The medical profession is here invading what has been the province of the church, and will need for the work not only the medical knowledge and skill which the church has never possessed, but the personal consecration and devotion which the church has often commanded.

Thoroughly educated physicians are needed for public sanitary duties. The local boards of health should be able to secure the services of the best local practitioners, and such services should be paid for by the public; for it is unreasonable that the profession which makes its living by tending the sick should be expected to labor gratuitously

to prevent sickness. In serving on boards of health physicians would be brought into intimate and influential relations with the other members of these boards,—lawyers, engineers, manufacturers, and merchants,—and through these boards of mixed membership would exercise on legislatures and the public a much stronger influence than they could exercise by themselves.

State medicine has many objects in view. It aims not only to protect the public health, but also to increase it. In state medicine individualism is impracticable, for it is impossible for the individual to protect himself. The social coöperation, which in our days the state alone can enforce, is needed to promote security against disease and progress toward better average health and longer life. To take all possible precautions against the spread of infectious diseases is simply an act of good citizenship. Nothing but medical supervision will accomplish the objects of state medicine; and there are no agents so effective as physicians to spread through all classes of the community an educated sense of sanitary decency. Only the state can guard against dirty milk, corrupted water-supplies, impure ice, adulterated drugs, spoilt meat and fruit, and filthy and overcrowded tenements. Only the state can enforce the isolation of cases of contagious disease, the suppression of epidemics, and the exclusion of pestilences like cholera and yellow fever. In exercising such control the state needs every aid which medical experts in chemistry, bacteriology,

and comparative pathology can place at its disposal. The medical profession itself hardly recognizes as yet how great promise there is in the further study of the connections between diseases in animals and in man — connections which smallpox, scarlatina in cows, tuberculosis in men and animals, and diphtheria already illustrate. Not even the state — that is, a single state or nation — can deal effectively with such a problem as the suppression of cholera or yellow fever. That is an international problem. The evils which the social and gregarious instincts of men create, by inducing the modern crowding into cities, must be socially remedied; and the most effective force which society can exert to this end is the influence of the highly trained medical officer. Every physician should be a medical philanthropist and missionary, zealous to disseminate knowledge of public hygiene. The medical profession, therefore, needs not only full knowledge of the history and functions of state medicine, but the intellectual and moral powers which will enable it to serve the state in these matters. These powers — particularly the powers of speech and writing which would give the profession influence with the mass of the population — come through early training and practice under guidance.

The trusted physician sees intimately many classes of society, whether he live in the country or the city. In the city he sees the well-to-do in their houses, and the poor at the hospitals and dispensaries. In the country he visits all the differ-

ent kinds of people in the town. The experienced physician is familiar with the causes of poverty and misery, and he is equally familiar with the ill effects of wealth and ease unaccompanied by mental and spiritual cultivation. He can recognize the socially normal and the socially abnormal, and distinguish unerringly between them. In the city he knows the evils which result from crowded tenements and dark, ill-ventilated working-places. In the country he knows all about the wet cellars in which decaying fruits and vegetables are stored, the bad cooking, and the careless disposition of the household sewage on the surface of the ground near the dwelling. He should be the best adviser on all social defenses against the physical evils which the greed, ignorance, or carelessness of individuals inflicts on the community; on the building of hospitals, large or small, in city or country; and on the training of competent nurses, whether for hospital or family service. The physician should be the chief defender of society against the superstitions which still prevail and the impostures which still thrive. His training being essentially the training of the naturalist, he should be the defender of the community against all forms of unreason. If the physician have the needed persuasive force, no one can defend society so effectually as he against those unreasonable persons who are constantly protesting against dissection, vaccination, and vivisection; for no one can understand so well as the physician the benefits which these processes have conferred upon the human race.

There is another important topic, to which the attention of the medical profession has been given spasmodically, but not with the effectiveness which might have been expected. I mean the legislative control of medical practice. So long as diagnosis depended on guessing, or divining, or on a natural insight of which the seer could give no definite account, there may have been some excuse for the absence of a law intended to insure the common people against ignorant physicians; but now that the means of diagnosis and prevention have become definite, the state may reasonably require every practitioner to know how to use them. The ignorant physician spreads diphtheria and scarlet fever simply because he cannot recognize them. Now that we have definite means of diagnosis, treatment, and prevention, which only education can give knowledge and command of, it is fair — indeed, it is imperative — that the state should require of all practitioners a competent training. Some progress has been made in this subject during the past twenty years, but much remains to be done.

Lastly, the physician needs thorough education, that he may hold his own in public estimation with other professional men who undergo a prolonged and vigorous preparatory training. Social power and standing come with recognized cultivation; and public confidence is given to men who are believed to seek truth for truth's sake, holding themselves free from the influence of inherited dogmas, consecrated phrases, and preconceived opinions

concerning the desirable results of current inquiries.

I hope I have said enough to satisfy my hearers that the opportunities and potencies of modern medical practice are so new and vast that an ampler education is needed by the practitioner. How is this education to be obtained? The four years' course at the Harvard Medical School, and at all other good medical schools, is completely filled with various instruction and practical exercises. No more can be done by the student in those four years than is done. Undoubtedly all the teaching can be indefinitely improved, and the laboratory processes can be made more economical of time and effort; but no significant additions can be made to the amount of the work done by the students in those years. On the other hand, it is highly inexpedient that the age at which students on the average graduate in medicine should be raised. The young men going out into hospitals and practice are quite old enough already — indeed, they are too old; for the earning of a livelihood is too long deferred, as are also marriage and family life. Whither turn, then, to achieve the great improvement in medical education which is absolutely indispensable for the future? We must turn to the period of school and college life — to the period which extends from the age of six to the age of twenty-one. Here it is that the enlarged education required by the physician is to be procured; and here it is that the influence of physicians is needed to improve the course of public

education. In the first place, the youth who is to be a physician must use well his school-time from six to eighteen, and then go through college or scientific school; and, in the second place, school, college, and scientific school all need to be improved, so that the naturalist mind may have a fair chance in them. In the grammar schools and secondary schools of our country much time is wasted through repetitions and reviews, and exaggerations of grammar, arithmetic, and political geography. That time must be saved. Subjects important in the early training of persons who are to be physicians — such as the elements of natural science — are often omitted, to the injury not only of that class of pupils, but of all the children. In some of the best secondary schools an unreasonable proportion of the time is given to foreign languages. And, finally, there is lack of connection between the secondary schools and the colleges and scientific schools, the requirements for admission to the latter not matching the graduation requirements for the former. For the present state of things the medical profession itself is somewhat responsible. So long as medical schools had no requirements for admission they sanctioned the idea that a young man whose education had been neglected up to his twentieth year could then turn to medicine as a profession, and expect to be well trained for it; so long as American society was in the rough, elementary, pioneering stage, physicians of that crude sort had their place, and a few of them became ultimately competent through the

stress of actual practice; but that day is past, and with it the old attitude of medical schools toward school and college education should become a thing of the past. The medical profession should insist that botany, zoölogy, chemistry, and physics receive due attention in elementary and secondary schools, and that English, both spoken and written, receive much more attention. They should insist that the elective system be so far developed in colleges and scientific schools that in those institutions the intending physician should be able to follow ardently and far the subjects preliminary to his chosen profession, and that the youth who naturally tends to observational subjects should have a fair chance to follow his bent. It is unnecessary to say that the additions made to the school studies, and the freedom of choice in colleges and scientific schools, would be for the advantage of all pupils; for all need at school the natural-science studies, and the developed study of English and of argumentative composition, while all would profit in the higher institutions by the abandonment of prescribed curricula. Physicians should be ready to serve on school committees and boards of trustees, in order to give practical effect to their opinions on this subject. The clerical profession has been long dominant in education. It is high time that physicians took a hand in that great public concern. They should fight at every turn the idea that there is more cultivation to be got from subjects which have no application in daily life than from those which are

capable of application. They should urge medical schools to raise their own requirements for admission. It is a great improvement which has lately been wrought in the State of New York, whereby some academic subjects are required as preliminary to medical education. It was a great example which the Johns Hopkins University set us all by demanding a degree for admission to its new medical school. It is a step in the right direction which the Harvard Medical School has just taken in giving notice that in and after the year 1901 a degree in arts, philosophy, science, or medicine will be demanded for admission to the school. Nothing short of the period from six to twenty-five will hereafter suffice for adequately preparing a young man for medical practice. We want the whole of that period well filled and well used. We want it for the honor and dignity and serviceableness of the profession itself. We want it also for the just furtherance of the work which the community may reasonably expect of the profession.

The medical profession has before it an entrancing prospect of usefulness and honor. It offers to young men the largest opportunities for disinterested, devoted, and heroic service. The times are past when men had to go to war to give evidence of endurance, or courage, or capacity to think quickly and well under pressure of responsibility and danger. The fields open to the physician and surgeon now give ample scope for these lofty qualities.

The times are past when the church alone asked

men to devote themselves patiently, disinterestedly, and bravely to the service of their fellow-men. The medical profession now exhibits in highest degree these virtues. Our nation sometimes seems tempted to seek in war — that stupid and horrible savagery — for other greatness than can come from vast natural resources, prosperous industries, and expanding commerce. The pursuits of peace seem to pall, for lack of risk and adventure. Would it might turn its energies and its longing for patriotic and heroic emotion into the immense fields of beneficent activity which sanitation, preventive medicine, and comparative medicine offer it! There are spiritual and physical triumphs to be won in these fields infinitely higher than any which war can offer, for they will be triumphs of construction and preservation, not of destruction and ruin. They will be triumphs of good over evil, and of happiness over misery.

A WIDER RANGE OF ELECTIVES IN COLLEGE ADMISSION REQUIREMENTS

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A WIDER RANGE OF ELECTIVES IN COLLEGE ADMISSION REQUIREMENTS

AS usual, it is necessary to define the subject a little. "A wider range of electives in college admission requirements." What field are we thinking of when we state this subject? If we mean the United States, the range of electives is already very large. Take, for example, the requirements for admission to the Leland Stanford University. Twenty subjects are named, of very different character and extent, and the candidate may present any ten out of the twenty. Botany counts just as much as Latin. There is a wide range of options at admission to the University of Michigan, with its numerous courses leading to numerous degrees; that is, there is a wide range of subjects permissible to a candidate who is thinking of presenting himself for some one of its many degrees. If we look nearer home, we find in so conservative an institution as Dartmouth College that there are three different degrees offered, with three different assortments of admission requirements, and three

different courses within the college. I noticed that at the last commencement there were forty-one degrees of the old-fashioned sort and twenty-seven degrees of the newer sorts given by Dartmouth College. Here in Harvard we have had for many years a considerable range of electives in the admission examinations, particularly in what we call the advanced requirements. We therefore need to limit our subject a little by saying that we are thinking of a wider range of admission electives in the Eastern and Middle State colleges, the range of electives farther west being already large in many cases.

Before 1870, in New England and the Middle States, one might say that the elements of Latin, Greek, and mathematics covered the entire range of admission subjects. To be sure, there was an additional subject called ancient history, but it held a very small place among the requirements for admission and in the school programmes, many excellent schools preparing their pupils to meet that requirement in five or six weeks, just before the examination for admission to college. English has now won a good place in school programmes and in college requirements for admission. What a marvel it is that it never had any place at all down to 1873, when it first appeared in the Harvard requirements! To-day we recognize that French and German have acquired standing-room among admission requirements. At Harvard modern languages are not admitted instead of ancient languages; but at so conservative an institution as Williams, and also at Tufts College, the modern

languages may be substituted for Greek. Science has thus far obtained but a feeble hold. We think the requirements in science are more substantial at Harvard than anywhere else. We have been much encouraged by the rapid progress of the schools in meeting the Harvard requirements in physics; for already a large majority of candidates offer the experimental course in physics, and not the book course. Still, when President Low was organizing six conferences on the requirements for admission to colleges in New England and the Middle States, he did not think it worth while to have a seventh conference on science, because the institutions within this territory give so little attention to science as a requirement for admission, and are so divided as to the nature of the requirement.

It seems as if the time had come when we should recognize — if not among the prescribed subjects, at least among the electives open to candidates who present themselves for admission to college — history, science, and the modern languages, and should seek a definition of science as a requirement for admission. I regret very much that science was omitted from the recent conferences in New York, because it is one of the secondary-school subjects that most need to be improved. A rational course in science — rational for the schools, because it affords a substantial training in observing, recording, and reasoning, and rational for the colleges, because it affords sound preparation for further study of science during the years of college life — is a great desideratum.

Let me say, in the first place, what I have often said before, that I, for one, have no interest whatever in new subjects for admission to college which are not just as substantial and difficult as the old ones. That a subject should be used as an elective in the admission examinations to colleges and universities because it is easier seems to me to be wholly bad. That is my objection to many of the requirements for admission at the Western institutions. In the University of Michigan, for example, they use subjects as admission requirements which are treated in the schools in a manner distinctly inferior to the treatment of the old subjects, and they admit to college, on these comparatively new subjects, men and women who have had a training inferior to that which those who present the old subjects have received. That method, I am sure, has no interest for any of us. What we want are new optional subjects which are just as good for training and discipline as the old.

What prospect is there that we can get such new elective requirements for admission? It seems to me that the teaching of modern languages in many of the schools represented here has now reached such a stage that we may fairly say that a training in French or German, or both, can be given which is just as substantial, strong, and useful a training as any other that is given in the same period. Can we say that of any other subject now proposed as an elective requirement? I am afraid not. Yet there is good hope for history. Within a few months a great deal of progress has been made in

bringing teachers of schools and college professors into harmony with regard to the claims and uses of that subject. Here at Harvard we have had a committee on requirements for admission at work all the year, which has paid special attention to history, and has agreed on a judicious school course in that subject. In the New York conference on history an agreement was reached without much difficulty in regard to a thorough four years' school course. I believe, therefore, that there is good hope that a substantial requirement in history can be agreed upon. In regard to science, the schools and colleges are further from that result; but some progress of an instructive kind has been made. At Harvard we feel that the true nature of a scientific requirement for admission has been already determined. It should include laboratory practice as well as lectures and recitations, and the original note-book of the candidate should be presented at the college or scientific school as evidence of the nature of the instruction which the candidate has received at school. We also think we have learned something useful with regard to the kind of evidence which may well come from the master of a school concerning his pupils' studies and attainments. We have found that the statements which we require from teachers as to the training of their pupils in physics have been a useful kind of evidence, and we are inclined to believe that evidence of the same sort might be advantageously used in other departments.

We have a good hope, then, that modern lan-

guages, history, and science may be added to the present requirements for admission at those institutions where but slight additions have thus far been made to the old requirements in Latin, Greek, and mathematics; and that these new subjects may be further extended and developed at institutions where some choice among equivalent subjects is already permitted.

Making this supposition, what is the first difficulty which presents itself with regard to the manner of using these new requirements? The first difficulty is to determine the proper weight of each requirement, new or old, or, in other words, the coefficient of each requirement in all the various combinations into which it may enter. How shall we determine what weight shall be attributed to each subject in comparison with every other subject? In any broad elective system no individual can present all the subjects. He must present a part—say two thirds or three fifths—of the subjects. Each subject, therefore, should have a valuation, or coefficient, attached to it. How much shall each subject count in the total of an individual candidate? Our method of valuing admission subjects at Harvard is, I believe, as careful as any; but we do not pretend to have an accurate method of attributing a proper weight to each subject. We have two-hour subjects and one-hour subjects; that is, to some subjects we give twice as much time at the examination as to others, and twice as much weight in determining the question of admission or rejection. Even this rough valua-

tion we might find it hard to justify. What should be the grounds of a just valuation of all the subjects that can be presented at admission examinations which include numerous options?

That question introduces us to a difficult inquiry. It is, of course, not an intelligent method to attribute a value to each subject in accordance with the time devoted to the examination in that subject. What clue have we toward a better mode of determining the value which ought to be attributed to each of these numerous electives, when the young men cannot present all the permitted subjects, and hardly three fifths of them, indeed, if the range is adequately widened? I believe that the best criterion for determining the value of each subject is the time devoted to that subject in schools which have an intelligent programme of studies. The Committee of Ten examined the number of subjects used in about two hundred of the best secondary schools in this country, and the time-allotments for the several subjects. They found a great variety of practice as to both selection of subjects and time-allotments. You can hardly say that there is an accepted time-allotment in these secondary schools for any subject — not even for the old traditional subjects. The time-allotments differ widely in different parts of the country, and even in different schools in the same part of the country. If, then, we are to determine by school time-allotments the valuations of the different subjects, prescribed and elective, which may enter into admission examina-

tions, we must have some sort of standard programmes for secondary schools. At present I know no programmes which can answer that purpose, except the provisional programmes of the Committee of Ten. They may fairly be said to be the best-studied programmes now before the country, and to represent the largest amount of professional consent, simply because they are the result of the work, first, of ninety school and college teachers, divided into nine different conferences by subject, and, secondly, of ten representative teachers combining and revising the work of the conferences, with careful reference to the present condition of American schools. These programmes seem to me, therefore, to afford the most available means of determining the time-allotment for each subject. Since we really cannot study the use of a wider range of electives without examining this question of the value to be attributed to each elective, you will excuse me if I go into a little detail with regard to the time-allotment, and the consequent value to be attributed to each subject.

The selection of subjects made by the Committee of Ten is, I believe, fairly representative of good secondary schools in the United States. There are seventeen of these subjects. Now, there is not as much difference of time-allotment among these subjects as one who approached the discussion without a pretty wide survey of the field would imagine. Latin has eighteen eightieths of the time on these programmes; that is, a student who takes all the Latin he can take on that programme

of the Committee of Ten which has the most Latin will devote to it eighteen eightieths of the four years. Greek has a smaller amount of time; but if a student devotes to that subject all the time possible on the classical programme of the Committee of Ten, including the remark in the note, he will give fourteen eightieths of his four years to Greek. English has from eleven to seventeen eightieths on the different programmes of the Committee of Ten. The largest amount of time devoted to it on any one programme is seventeen eightieths, within one eightieth of the time devoted to Latin. Algebra, geometry, and trigonometry have together fourteen eightieths, which is the same proportion that Greek has. German and French have from eleven eightieths to eighteen eightieths each; that is, the allotment to French or German for a youth who takes all the French he can take, or all the German he can take, is just the same as that to Latin. History does not fare quite so well; but, still, history has from nine eightieths to fourteen eightieths, being about the allotment to Greek. Natural-history subjects occur under the heads of physical geography, botany, zoölogy, and geology; but under the programmes of the Committee of Ten a pupil cannot take both botany and zoölogy, because these two subjects come at the same hours. An individual pupil can devote to this group only nine eightieths of his time for four years, an allotment which matches the minimum in history. Lastly, for physics, chemistry, astronomy, and meteorology the total is the same as for history

and for natural history, viz., nine eightieths. That is the entire set of subjects. You see that the range of time-allotments is not so great as one would imagine from a cursory examination of the programmes. You may say that the time-allotments range from nine to eighteen eightieths, it being understood that the natural-history subjects and the physical-science subjects are grouped. It is, therefore, not hopeless, by any means, to attempt to make a just valuation of each of these subjects, and groups of subjects, based upon time-allotment. The suggestion of some other possible basis for a proper valuation would be very useful; for a sound and uniform method of valuing the different subjects which can be presented at admission examinations will be of great importance, if the range of elective subjects is to be widened. It is absurd, I think, to give the same weight to algebra, which has six eightieths of the time of a pupil in four years, and to Latin, which has eighteen eightieths of the same period of four years. Those two subjects should not count alike, or even in the ratio of one to two. Neither should botany, with three eightieths, count like English, with eighteen eightieths of the pupil's time in four years. In widening the range of elective requirements for admission, we must avoid that sort of inaccuracy and injustice.

In general, with regard to the treatment of electives, in college or before college, this difficulty of determining relative values is a serious one, which has to be studied carefully in order to preserve a

just value and significance for the degree which is the common certificate at the close of individual courses, made up, we may say, of infinitely varied materials. In the more limited problem of dealing with electives at admission examinations the same difficulty will present itself, unless we have an intelligent mode of assigning a value to each subject.

I turn now to another serious difficulty which teachers know to exist in regard to new subjects at admission examinations, and, indeed, in regard to extensions of old subjects. I refer to the difficulty of securing uniform enforcement of the requirements which stand on paper. New subjects present more difficulties than old subjects in this respect, because in Latin, Greek, and elementary mathematics generations of teachers, both in school and in college, have been brought up to use the existing methods and materials,— methods and materials which are better studied and defined than they are in the new subjects,— and there is consequently a better common standard of work. A good deal has been done in New England during the last twenty years toward a uniform standard of enforcement of Latin and Greek requirements; but I think we shall all recognize the fact that to secure uniformity in the enforcement of new requirements will be more difficult than it has been in regard to the old. The isolated condition of colleges accounts in part for these difficulties. Twenty-five years ago the college faculties of New England were isolated to a most extraordinary degree. They hardly had any opportunities of co-

operative intercourse. And within each of those faculties there were men who had for years controlled the admission papers in their own subjects. An isolated faculty, holding little communion with any other faculty or with secondary schools, and within the faculty a single man writing for years the papers for admission examinations in a given subject, and probably examining the answers, and that single man at Dartmouth holding a different view from the corresponding man at Yale or Harvard — from such conditions there could not but result a great difficulty for school-teachers with regard to the standard of enforcement. By coöperative effort through such organizations as the New England Association of Colleges and Preparatory Schools, and by conference methods, some of these difficulties have been removed; but we shall not get a satisfactory use of a wider range of electives in admission requirements until this particular difficulty, which results from isolation and lack of cooperation among colleges, has been successfully dealt with. A year ago last November I made to the Association of Colleges in New England the suggestion that those colleges organize a board of examiners, which should conduct all over the country admission examinations, the certified results of which should be good at all the New England colleges, and good anywhere else where the certificates of the board would be taken; and I detailed to the assembled representatives of the colleges the general method that could be followed. Several universities in this country have already acquired

experience in conducting examinations at many points scattered over the United States, and they have proved that there is no mechanical difficulty at all in carrying out that method. There is enough experience now to demonstrate that examinations might be conducted at two or three hundred points in the United States, by a common board of examiners, with the utmost ease, and, on the whole, a great saving of money to the candidates, even though a fee of five to ten dollars should be charged each candidate for the examination. I hardly think that the proposition was regarded by the Association of Colleges as one to be seriously taken up. At any rate, it was not taken up. Two or three times lately I have made similar suggestions at teachers' meetings. I offered the same suggestion at the recent meeting of the Schoolmasters' Association of New York city and the vicinity; and President Low said at the meeting that his first impression of the plan was favorable, and that he should be glad to enter into a conference on the subject. That is an encouraging sign, because President Low is a man of large influence, and singularly fitted to promote coöperative enterprises. I think, therefore, that we may be approaching the adoption of some such method. It need not be a New England method. Any group of six to twelve colleges or universities in this country could organize the scheme for the whole country, the board appointing the writers of question papers and the readers of answer papers. The preparation of each question paper would be com-

mitted to a group of men, not to one man, and this group would be taken from various institutions. The board would see to the mechanical preparation of the papers, and to all administrative details, and would fix the places where the examinations should be held. If six universities united to do this, they would not use their own men only; they would select their examiners from a large variety of colleges and scientific schools. The results would be tabulated, so as to exhibit the record of every individual, just as the results of the numerous examinations conducted by Oxford and Cambridge at many centers in England are tabulated. The result for each individual could be used at any college in the country for what it was worth in its eyes. The scheme would not interfere in the least with the individuality of a school or college. The examinations would cover a larger range of studies than most schools could afford to supply; but any school could decide to what subjects it would devote itself, and any college or university could say what subjects it would absolutely require, and what range of electives should be permitted to its candidates for admission. It would, of course, be true in the future, as in the past, that the different colleges and universities would make different demands. One college would demand more subjects than another; but, subject by subject, the requirements would be the same on paper, and they would be enforced by a common board. I speak of this matter now because I feel sure that we cannot deal

satisfactorily with a new set of requirements for admission unless we imagine from the start that we are going to get a more uniform method of enforcement than has ever obtained in this country, even with regard to the old subjects. I think the teachers here present will see that this method would emancipate them from many annoyances, restrictions, and personal idiosyncrasies which now seriously affect admission examinations.

These, then, are the three points that I wish to bring to your attention: first, that we may expect a large addition to the old-fashioned requirements for admission; next, that we need a mode of attaching to the new subjects severally, as to the old, a just valuation for admission purposes; and, thirdly, that we shall need some method capable of securing tolerably uniform enforcement of the new and old requirements.

Let me add a few words with regard to the interests of the colleges and universities and of the country in this matter. We have seen of late years a large introduction of the elective system into secondary schools. Few teachers seem to appreciate the extent of this introduction. One reason for the common failure to appreciate this phenomenon is that the phrase "elective system" is not generally applied to secondary schools. Nevertheless, there actually exists in American secondary schools a very important amount of election of subjects, or groups of subjects. As a result of this election of subjects, or of groups of

subjects, we find that young men and women are directed upon our colleges in different ways; that is, candidates for admission to colleges have really pursued different studies on different courses, to a great degree, while at school. The colleges have been trying to meet this condition of things by setting up different degrees to represent the next stage of education, ordinarily called the higher education; and we have therefore witnessed in this country a multiplication of degrees, all of which represent college or scientific-school education. Some universities use the four degrees called Bachelor of Arts, Bachelor of Science, Bachelor of Philosophy, and Bachelor of Letters. Many universities and colleges use two or three of these titles. In this process a grave evil has come into both schools and colleges, because the new courses in the secondary schools have generally been inferior to the old or classical course; and, moreover, the new degrees in the colleges and universities generally represent an inferior attainment on the part of the pupils, either at school or within the college or university itself, or sometimes in both places. It is a great object to put an end to these inferior courses, both in schools and in colleges. We want all the variety which is now permitted, but we want it to become a variety of equal things, and not a variety which includes some large subjects and many small ones, some subjects long and faithfully pursued, and others pursued only for a short time and in a superficial way. The courses now inferior should be leveled

up. The several degrees now in use ought to be made to indicate tolerably equal attainments, though various — a standard of education, training, and discipline approximately uniform, although the elements of the training or discipline have been different.

AN URBAN UNIVERSITY

Dedication of the New Grounds of Columbia University,
May, 1896

AN URBAN UNIVERSITY

ONLY six years ago, near the close of the festivities which marked the happy inauguration of President Low, I ventured to say that Columbia's sister universities ardently wished she might acquire, in the common interests of all learning and philanthropy, much greater endowments than she then possessed, and particularly might get grounds and buildings worthy of the principal seat of learning in this rich and splendid mart. The experience of other institutions seemed to me to indicate that the new buildings might best be obtained through gifts from rich and sagacious men of good will. In the short interval between that day and this, the combined influence and efforts of president, trustees, faculties, and alumni, and the shining example of President Low, have brought much to pass; and it is my privilege today to bring you the hearty congratulations of the sister universities on the acquisition of this spacious site, of these rising buildings, and of numerous important additions to the material and in-

tellectual resources of the University. To the governors of universities which occupy hundreds of acres of land in comparatively open towns or cities, even this noble site seems to offer but a closely restricted number of opportunities for those public-spirited persons who may reasonably aspire to erect buildings for the University. These precious opportunities for doing some perpetual good will soon be seized upon by a fortunate few who shall, in this nick of time, both feel the desire and possess the means to serve their kind in a rarely delightful and enduring way, the beneficence of which has neither drawback nor alloy.

I congratulate the city, too, that its chief university is to have here a setting commensurate with the worth of its intellectual and spiritual influence. No American community can profit so much from the presence of a strong and progressive university as can this great city, at once magnificent and squalid, majestic and ignoble, at once Freedom's pride and Freedom's reproach. Universities are no longer merely students of the past, meditative observers of the present, or critics at safe distance of the actual struggles and strifes of the working world. They are active participants in all the fundamental, progressive work of modern society. By spoken word, by pen and pencil, through laboratories, libraries, and collections, through courts, churches, schools, charities, and hospitals, they promote the forward movement of society, and help to open its onward way. Columbia University, in its recent history, amply illus-

trates this truth; for it has contributed effectively to the advancement of architecture, pedagogy, economics, political science, sociology, chemistry, physics, engineering, and biology, in all which subjects the city of New York, and the country at large, have interests of incalculable magnitude. Through their perennial interest in philosophy and ethics, and in sacred and profane literature and history, universities enlarge and sweeten the inherited conceptions of the age in regard to religion and family life, and bring about modifications of obstructive dogma and ritual in organized religion, and of outgrown customs and laws concerning the family. This service is a vital one, since religion in the universal sense and the domestic affections remain, through all governmental and industrial changes, the supreme forces in human society.

The influence of Columbia, and of all well-conducted American universities, is sure to become stronger and stronger as time goes on. Our free institutions are going to receive a great service from the universities they have fostered. Whenever just sentiments, widely diffused through the mass of the people, can furnish sufficient guidance to wise public action, right determinations by universal suffrage may be relied on. Questions concerning independence, union, personal liberty, and religious toleration turn on such sentiments, and will be wisely settled by the mass of the people. But when the judicious determination of a public policy depends on careful collection of facts, keen discrimination, sound reasoning, and sure fore-

sight, our republic must soon follow, as all other civilized governments already do, the advice of highly trained men, who have made themselves, by long study and observation, experts in the matter in hand. Questions of currency, taxation, education, and public health belong to that class of public questions which absolutely require for their satisfactory settlement the knowledge and trained judgment of experts; and the only wise decision which universal suffrage can make upon them is the decision to abide by expert opinion. The more complicated and difficult the public business becomes, the more pressing the need of expert management; and soon any other management will be simply ruinous. Now, the experts needed are going to be trained in the American universities which, like Columbia, maintain at large centers of population well-equipped schools for all the learned and scientific professions.

The sister universities hope and expect that the citizens of New York will pour riches at the feet of Columbia; but they know that, however much New York may do for the University, Columbia will do a hundredfold more for the city and the State, through the multifarious services of her sons, taught here to discharge well their duties to society.

THE FUNCTION OF EDUCATION IN DEMOCRATIC SOCIETY

AN ADDRESS

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WHAT the function of education shall be in a democracy will depend on what is meant by democratic education.

Too many of us think of education for the people as if it meant only learning to read, write, and cipher. Now, reading, writing, and simple ciphering are merely the tools by the diligent use of which a rational education is to be obtained through years of well-directed labor. They are not ends in themselves, but means to the great end of enjoying a rational existence. Under any civilized form of government, these arts ought to be acquired by every child by the time it is nine years of age. Competent teachers, or properly conducted schools, now teach reading, writing, and spelling simultaneously, so that the child writes every word it reads, and, of course, in writing spells the word. Ear, eye, and hand thus work together from the beginning in the acquisition of the arts of reading and writing. As to ciphering, most educational experts

have become convinced that the amount of arithmetic which an educated person who is not some sort of computer needs to make use of is but small, and that real education should not be delayed or impaired for the sake of acquiring a skill in ciphering which will be of little use either to the child or to the adult. Reading, writing, and arithmetic, then, are not the goal of popular education.

The goal in all education, democratic or other, is always receding before the advancing contestant, as the top of a mountain seems to retreat before the climber, remoter and higher summits appearing successively as each apparent summit is reached. Nevertheless, the goal of the moment in education is always the acquisition of knowledge, the training of some permanent capacity for productiveness or enjoyment, and the development of character. Democratic education being a very new thing in the world, its attainable objects are not yet fully perceived. Plato taught that the laborious classes in a model commonwealth needed no education whatever. That seems an extraordinary opinion for a great philosopher to hold; but, while we wonder at it, let us recall that only one generation ago in some of our Southern States it was a crime to teach a member of the laborious class to read. In feudal society education was the privilege of some of the nobility and clergy, and was one source of the power of these two small classes. Universal education in Germany dates only from the Napoleonic wars; and its object has been to make intelligent soldiers and subjects, rather than happy

freemen. In England the system of public instruction is but twenty-seven years old. Moreover, the fundamental object of democratic education — to lift the whole population to a higher plane of intelligence, conduct, and happiness — has not yet been perfectly apprehended even in the United States. Too many of our own people think of popular education as if it were only a protection against dangerous superstitions, or a measure of police, or a means of increasing the national productiveness in the arts and trades. Our generation may, therefore, be excused if it has but an incomplete vision of the goal of education in a democracy.

I proceed to describe briefly the main elements of instruction and discipline in a democratic school. As soon as the easy use of what I have called the tools of education is acquired, and even while this familiarity is being gained, the capacities for productiveness and enjoyment should begin to be trained through the progressive acquisition of an elementary knowledge of the external world. The democratic school should begin early — in the very first grades — the study of nature; and all its teachers should, therefore, be capable of teaching the elements of physical geography, meteorology, botany, and zoölogy, the whole forming in the child's mind one harmonious sketch of its complex environment. This is a function of the primary-school teacher which our fathers never thought of, but which every passing year brings out more and more clearly as a prime function of every instructor of little children. Somewhat later in the

child's progress toward maturity the great sciences of chemistry and physics will find place in its course of systematic training. From the seventh or eighth year, according to the quality and capacity of the child, plane and solid geometry, the science of form, should find a place among the school studies, and some share of the child's attention that great subject should claim for six or seven successive years. The process of making acquaintance with external nature through the elements of these various sciences should be interesting and enjoyable for every child. It should not be painful, but delightful; and throughout the process the child's skill in the arts of reading, writing, and ciphering should be steadily developed.

There is another part of every child's environment with which he should early begin to make acquaintance, namely, the human part. The story of the human race should be gradually conveyed to the child's mind from the time he begins to read with pleasure. This story should be conveyed quite as much through biography as through history; and with the descriptions of facts and real events should be entwined charming and uplifting products of the imagination. I cannot but think, however, that the wholly desirable imaginative literature for children remains, in large measure, to be written. The mythologies, Old Testament stories, fairy tales, and historical romances on which we are accustomed to feed the childish mind contain a great deal that is perverse, barbarous, or trivial; and to this infiltration into children's

minds, generation after generation, of immoral, cruel, or foolish ideas, is probably to be attributed, in part, the slow ethical progress of the race. The common justification of our practice is that children do not apprehend the evil in the mental pictures with which we so rashly supply them. But what should we think of a mother who gave her child dirty milk or porridge, on the theory that the child would not assimilate the dirt? Should we be less careful of mental and moral food-materials? It is, however, as undesirable as it is impossible to try to feed the minds of children only upon facts of observation or record. The immense product of the imagination in art and literature is a concrete fact with which every educated human being should be made somewhat familiar, such products being a very real part of every individual's actual environment.

Into the education of the great majority of children there enters as an important part their contribution to the daily labor of the household and the farm, or, at least, of the household. It is one of the serious consequences of the rapid concentration of population into cities and large towns, and of the minute division of labor which characterizes modern industries, that this wholesome part of education is less easily secured than it used to be when the greater part of the population was engaged in agriculture. Organized education must, therefore, supply in urban communities a good part of the manual and moral training which the coöperation of children in the work of father and mother

affords in agricultural communities. Hence the great importance in any urban population of facilities for training children to accurate hand-work, and for teaching them patience, forethought, and good judgment in productive labor.

Lastly, the school should teach every child, by precept, by example, and by every illustration its reading can supply, that the supreme attainment for any individual is vigor and loveliness of character. Industry, persistence, veracity in word and act, gentleness, and disinterestedness should be made to thrive and blossom during school life in the hearts of the children who bring these virtues from their homes well started, and should be planted and tended in the less fortunate children. Furthermore, the pupils should be taught that what is virtue in one human being is virtue in any group of human beings, large or small — a village, a city, or a nation; that the ethical principles which should govern an empire are precisely the same as those which should govern an individual; and that selfishness, greed, falseness, brutality, and ferocity are as hateful and degrading in a multitude as they are in a single savage.

The education thus outlined is what I think should be meant by democratic education. It exists to-day only among the most intelligent people, or in places singularly fortunate in regard to the organization of their schools; but though it be the somewhat distant ideal of democratic education, it is by no means an unattainable ideal. It is the reasonable aim of the public school in a

thoughtful and ambitious democracy. It, of course, demands a kind of teacher much above the elementary-school teacher of the present day, and it also requires a larger expenditure upon the public school than is at all customary as yet in this country. But that better kind of teacher and that larger expenditure are imperatively called for, if democratic institutions are to prosper, and to promote continuously the real welfare of the mass of the people. The standard of education should not be set at the now attained or the now attainable. It is the privilege of public education to press toward a mark remote.

From the total training during childhood there should result in the child a taste for interesting and improving reading, which should direct and inspire its subsequent intellectual life. That schooling which results in this taste for good reading, however unsystematic or eccentric the schooling may have been, has achieved a main end of elementary education; and that schooling which does not result in implanting this permanent taste has failed. Guided and animated by this impulse to acquire knowledge and exercise his imagination through reading, the individual will continue to educate himself all through life. Without that deep-rooted impulsion he will soon cease to draw on the accumulated wisdom of the past and the new resources of the present, and, as he grows older, he will live in a mental atmosphere which is always growing thinner and emptier. Do we not all know many people who seem to live in a mental vacuum

— to whom, indeed, we have great difficulty in attributing immortality, because they apparently have so little life except that of the body? Fifteen minutes a day of good reading would have given any one of this multitude a really human life. The uplifting of the democratic masses depends on this implanting at school of the taste for good reading.

Another important function of the public school in a democracy is the discovery and development of the gift or capacity of each individual child. This discovery should be made at the earliest practicable age, and, once made, should always influence, and sometimes determine, the education of the individual. It is for the interest of society to make the most of every useful gift or faculty which any member may fortunately possess; and it is one of the main advantages of fluent and mobile democratic society that it is more likely than any other society to secure the fruition of individual capacities. To make the most of any individual's peculiar power, it is important to discover it early, and then train it continuously and assiduously. It is wonderful what apparently small personal gifts may become the means of conspicuous service or achievement, if only they get discovered, trained, and applied. A quick eye for shades of color enables a blacksmith to earn double wages in sharpening drills for quarrymen. A delicate sense of touch makes the fortune of a wool-buyer. An extraordinarily perceptive forefinger gives a surgeon the advantage over all his competitors. A

fine voice, with good elocution and a strong memory for faces and parliamentary rules, may give striking political success to a man otherwise not remarkable. In the ideal democratic school no two children would follow the same course of study or have the same tasks, except that they would all need to learn the use of the elementary tools of education — reading, writing, and ciphering. The different children would hardly have any identical needs. There might be a minimum standard of attainment in every branch of study, but no maximum. The perception or discovery of the individual gift or capacity would often be effected in the elementary school, but more generally in the secondary; and the making of these discoveries should be held one of the most important parts of the teacher's work. The vague desire for equality in a democracy has worked great mischief in democratic schools. There is no such thing as equality of gifts, or powers, or faculties, among either children or adults. On the contrary, there is the utmost diversity; and education and all the experience of life increase these diversities, because school, and the earning of a livelihood, and the reaction of the individual upon his surroundings, all tend strongly to magnify innate diversities. The pretended democratic school with an inflexible programme is fighting not only against nature, but against the interests of democratic society. Flexibility of programme should begin in the elementary school, years before the period of secondary education is reached. There should be some choice of

subjects of study by ten years of age, and much variety by fifteen years of age. On the other hand, the programmes of elementary as well as of secondary schools should represent fairly the chief divisions of knowledge, namely, language and literature, mathematics, natural science, and history, besides drawing, manual work, and music. If school programmes fail to represent the main varieties of intellectual activity, they will not afford the means of discovering the individual gifts and tendencies of the pupils.

As an outcome of successful democratic education, certain habits of thought should be well established in the minds of all the children before any of them are obliged to leave school in order to help in the support of the family. In some small field each child should acquire a capacity for exact observation, and as a natural result of this acquirement it should come to admire and respect exact observation in all fields. Again, in some small field it should acquire the capacity for exact description, and a respect for exact description in all fields. And, lastly, it should attain, within the limited range of its experience and observation, the power to draw a justly limited inference from observed facts. I need not say that this power of just inference is an admirable one, which many adults never attain as the combined result of their education in childhood and their experience in after life. Yet democratic institutions will not be safe until a great majority of the population can be trusted not only to observe accurately and

state precisely the results of observation, but also to draw just inferences from those results. The masses of the people will always be liable to dangerous delusions so long as their schools fail to teach the difference between a true cause and an event preceding or accompanying a supposed effect. Thus, a year ago our nation came to the very brink of a terrible disaster because millions of our people thought the fall in the price of silver during the past twenty years was the cause of the fall in price of many other American products; whereas the prime cause of the general fall of prices, including the price of silver, was the immense improvement which has taken place since the Civil War in the manufacture and distribution of mechanical power—an operating cause which, in the near future, is going to produce much more striking effects than it has yet produced.

Any one who has attained to the capacity for exact observation and exact description, and knows what it is to draw a correct inference from well-determined premises, will naturally acquire a respect for these powers when exhibited by others in fields unknown to him. Moreover, any one who has learned how hard it is to determine a fact, to state it accurately, and to draw from it the justly limited inference, will be sure that he himself cannot do these things, except in a very limited field. He will know that his own personal activity must be limited to a few subjects, if his capacity is to be really excellent in any. He will be sure that the too common belief that a Yankee can turn his

hand to anything is a mischievous delusion. Having, as the result of his education, some vision of the great range of knowledge and capacity needed in the business of the world, he will respect the trained capacities which he sees developed in great diversity in other people. In short, he will come to respect and confide in the expert in every field of human activity. Confidence in experts, and willingness to employ them and abide by their decisions, are among the best signs of intelligence in an educated individual or an educated community; and in any democracy which is to thrive, this respect and confidence must be felt strongly by the majority of the population. In the conduct of private and corporation business in the United States the employment of experts is well recognized as the only rational and successful method. No one would think of building a bridge or a dam, or setting up a power-station or a cotton-mill, without relying absolutely upon the advice of intelligent experts. The democracy must learn, in governmental affairs, whether municipal, State, or national, to employ experts and abide by their decisions. Such complicated subjects as taxation, finance, and public works cannot be wisely managed by popular assemblies or their committees, or by executive officers who have no special acquaintance with these most difficult subjects. American experience during the last twenty years demonstrates that popular assemblies have become absolutely incapable of dealing wisely with any of these great subjects. A legislature or a Con-

gress can indicate by legislation the object it wishes to attain; but to devise the means of attaining that object in taxation, currency, finance, or public works, and to expend the money appropriated by the constituted authorities for the object, must be functions of experts. Legislators and executives are changed so frequently, under the American system of local representation, that few gain anything that deserves to be called experience in legislation or administration; while the few who serve long terms are apt to be so absorbed in the routine work of carrying on the government and managing the party interests, that they have no time either for thorough research or for invention. Under present conditions, neither expert knowledge nor intellectual leadership can reasonably be expected of them. Democracies will not be safe until the population has learned that governmental affairs must be conducted on the same principles on which successful private and corporate business is conducted; and therefore it should be one of the principal objects of democratic education so to train the minds of the children, that when they become adult they shall have within their own experience the grounds of respect for the attainments of experts in every branch of governmental, industrial, and social activity, and of confidence in their advice.

The next function of education in a democracy should be the firm planting in every child's mind of certain great truths which lie at the foundation of the democratic social theory. The first of these

truths is the intimate dependence of each human individual on a multitude of other individuals, not in infancy alone, but at every moment of life — a dependence which increases with civilization and with the development of urban life. This sense of mutual dependence among multitudes of human beings can be brought home to children during school life so clearly and strongly that they will never lose it. By merely teaching children whence come their food, drink, clothing, and means of getting light and heat, and how these materials are supplied through the labors of many individuals of many races scattered all over the world, the school may illustrate and enforce this doctrine of intricate interdependence, which really underlies modern democracy — a doctrine never more clearly expressed than in these two Christian sentences: "No man liveth to himself," and "We are every one members one of another." The dependence of every family, and indeed every person, on the habitual fidelity of mechanics, purveyors, railroad servants, cooks, and nurses can easily be brought home to children. Another mode of implanting this sentiment is to trace in history the obligations of the present generation to many former generations. These obligations can be easily pointed out in things material, such as highways, waterworks, fences, houses, and barns, and, in New England at least, the stone walls and piles of stone gathered from the arable fields by the patient labor of predecessors on the family farm. But it may also be exhibited to the pupils of sec-

ondary schools, and, in some measure, to the pupils of elementary schools, in the burdens and sufferings which former generations have borne for the establishment of freedom of conscience and of speech, and of toleration in religion, and for the development of the institutions of public justice. Of course history is full of examples of the violation of this fundamental democratic doctrine of mutual help. Indeed, history, as commonly written, consists chiefly in the story of hideous violations of this principle, such as wars and oppressions, and the selfish struggles of class against class, church against church, and nation against nation. But these violations, with the awful sufferings that follow from them, may be made to point and emphasize the truth of the fundamental doctrine; and unless the teaching of history in our public schools does this, it were better that the subject should not be taught at all.

Democratic education should also inculcate on every child the essential unity of a democratic community, in spite of the endless diversities of function, capacity, and achievement among the individuals who compose the community. This is a doctrine kindred with that just mentioned, but not identical. It is a doctrine essential to diffused democratic contentment and self-respect, but materially different from the ordinary conception of equality of condition as a result of democracy; for unity is attainable, while equality of condition is unnatural and unattainable. The freedom and social mobility which characterize the democratic

state permit, and indeed bring about, striking inequalities of condition; and if the surface of democratic society should be leveled off any day, inequalities would reappear on the morrow, unless individual freedom and social mobility should be destroyed. The children of a democratic society should, therefore, be taught at school, with the utmost explicitness, and with vivid illustrations, that inequalities of condition are a necessary result of freedom; but that through all inequalities should flow the constant sense of essential unity in aim and spirit. This unity in freedom is the social goal of democracy, the supreme good of all ranks of society, of the highest no less than of the lowest.

Another ethical principle which a democracy should teach to all its children is the familiar Christian doctrine that service rendered to others is the surest source of one's own satisfaction and happiness. This doctrine is a tap-root of private happiness among all classes and conditions of men; but in a democracy it is important to public happiness and well-being. In a democracy the public functionary is not a master, but a trusted servant. By excellence of service he earns not only a pecuniary consideration, but also respect and gratitude. This statement applies just as well to a letter-carrier, a fireman, or a village selectman, as it does to a high-school teacher, a judge, or a governor. Democracy applies literally the precept, "If any man would be great among you, let him be your servant." The quality of this faithful service and its rewards should be carefully taught in school to all children of a democracy. The children should

learn that the desire to be of great public service is the highest of all ambitions; and they should be shown in biography and in history how the men and women who, as martyrs, teachers, inventors, legislators, and judges, have rendered great service, have thereby won enduring gratitude and honor.

Since it is a fundamental object of a democracy to promote the happiness and well-being of the masses of the population, the democratic school should explicitly teach children to see and utilize the means of happiness which lie about them in the beauties and splendors of nature. The school should be a vehicle of daily enjoyment, and the teacher should be to the child a minister of joy. Democratic society has already learned how to provide itself — at least, in the more intelligent communities — with open grounds in cities, and parks in suburbs, and has in these ways begun to provide directly for the wholesome pleasures of the population. It should be a recognized function of the democratic school to teach the children and their parents how to utilize all accessible means of innocent enjoyment.

Finally, the democratic school must teach its children what the democratic nobility is. The well-trained child will read in history and poetry about patricians, nobles, aristocrats, princes, kings, and emperors, some of them truly noble, but many vile; and he will also read with admiring sympathy of the loyalty and devotion which through all the centuries have been felt by generous men and women of humbler condition toward those of higher. He will see what immense virtues these

personal loyalties have developed, even when the objects of loyalty have been unworthy; and he will ask himself, "What are to be the corresponding virtues in a democracy?" The answer is, Fidelity to all forms of duty which demand courage, self-denial, and zeal, and loyal devotion to the democratic ideals of freedom, serviceableness, unity, toleration, public justice, and public joyfulness. The children should learn that the democratic nobility exists, and must exist if democracy is to produce the highest types of character; but that it will consist only of men and women of noble character, produced under democratic conditions by the combined influences of fine inherited qualities, careful education, and rich experience. They should learn to admire and respect persons of this quality, and to support them, on occasion, in preference to the ignoble. They should learn that mere wealth has no passport to the democratic nobility, and that membership in it can be transmitted to children only through the transmission of the sound mental and moral qualities which are its sole warrant. This membership should be the rightful ambition of parents for their children, and of children for their future selves. Every person of the true quality, no matter what his station or vocation, is admitted of right to this simple democratic nobility, which home, church, and school unite in recruiting; and there are, consequently, more real nobles under the democratic form of government than under any other.

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